# INCIDENCE AND OUTCOME OF CUTANEOUS MALIGNANCIES IN COIMBATORE MEDICAL COLLEGE HOSPITAL COIMBATORE.


**Dissertation submitted in**

**Partial fulfilment of the regulations required for the award of**

**M.S. DEGREE**

**in**

**GENERAL SURGERY – BRANCH - I**


**THE TAMILNADU**

**DR. M.G.R. MEDICAL UNIVERSITY**

**CHENNAI**

**APRIL- 2013**

# *Certificate*

# Coimbatore Medical College

COIMBATORE, TAMILNADU, INDIA - 641 014

(Affiliated to The Tamilnadu Dr. MGR Medical University, Chennai)

## ETHICS COMMITTEE

## CERTIFICATE

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Course : M.S. GENERAL SURGERY

Period of Study : SEPTEMBER 2011 - NOVEMBER 2012

College : COIMBATORE MEDICAL COLLEGE

Dissertation Topic : INCIDENCE AND OUTCOME OF CUTANEOUS MALIGNANCIES IN COIMBATORE MEDICAL COLLEGE HOSPITAL

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# INCIDENCE AND OUTCOME OF CUTANEOUS MALIGNANCIES IN COIMBATORE MEDICAL COLLEGE HOSPITAL COIMBATORE.


## Abstract:

## Introduction:

The incidence of skin cancers are increasing worldwide. Prolonged and excessive exposure to UVB rays of sunlight is the major risk factor for skin cancers. Even though skin cancers are rare in India, Non Melanoma Skin Cancer (NMSC) is increasing in Indian population. Skin cancers are curable once diagnosed and treated early.

## Background:

Study period - from September 2011 to November 2012. Study population taken from Coimbatore medical college hospital from surgery, dermatology and plastic surgery departments.

## Objectives of the study:

To study about the incidence, clinical and anatomical presentation of various types of cutaneous malignancies and its histological features, the various appropriate treatment modalities available in our hospital and the morbidity and mortality with available facilities and modalities of treatment.

**Results:**

As compared with previous studies the incidences of skin cancers have increased at present. 45 cases of skin cancers were diagnosed. SCC-(69%), BCC-(22%), MM-(9%). SCC had their higher incidence among our patients. Most of the lesions presented in lower limb and foot. Most patients were between 40-70 years of age. BCC and SCC together had increase in incidence in female population.

More number of BCC was diagnosed in females. MM had the low incidence in our population. In case of diagnosed patients, we were able to give complete cure at most possible.

**Conclusion:**

Skin cancer is becoming more common cancer among the Indians due to their excessive and prolonged exposure to UVR of sun light. It is totally curable once diagnosed and treated at early. The best modality of the diagnosis is by subjecting the lesions for biopsy. By obtaining the proper history, clinical examination and strong suspicion on each and every non healing ulcer, changes in the mole one can diagnose skin cancers early. The best modality of treatment in our setup is surgery.

**Key Words:**

Non melanoma skin cancer, cutaneous malignancies, squamous cell carcinoma, basal cell carcinoma, malignant melanoma.

**Foot Notes:** SCC- Squamous Cell Carcinoma, BCC- Basal Cell Carcinoma, MM- Malignant Melanoma, UVR- Ultraviolet Rays, UVB- Ultraviolet Rays B.

# CERTIFICATE

This is to certify that the dissertation entitled **"INCIDENCE AND OUTCOME OF CUTANEOUS MALIGNANCIES IN COIMBATORE MEDICAL COLLEGE HOSPITAL , COIMBATORE"** is a bonafide work done by **Dr.K.S.SARAVANA RAJU**, Post Graduate student in Department of General Surgery, Coimbatore Medical College, under the supervision and guidance of **Dr.V.ELANGO M.S, FAIS.,** Professor of Surgery, Department of General Surgery, Coimbatore Medical College, Coimbatore, in partial fulfilment of the requirement of **The Tamilnadu Dr.M.G.R.Medical University** for the award of M.S. Degree in General Surgery.

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# Declaration

# DECLARATION

I**, Dr. K. S. SARAVANA RAJU,** solemnly declare that dissertation titled, **"INCIDENCE AND OUTCOME OF CUTANEOUS MALIGNANCIES IN COIMBATORE MEDICAL COLLEGE HOSPITAL, COIMBATORE."** is a bonafide work done by me at Coimbatore Medical College Hospital, during September 2011-November 2012 under the guidance and supervision of **Prof. Dr.V.ELANGO MS, FAIS.,** Professor of Surgery, Department of General Surgery, Coimbatore Medical College, Coimbatore.

The dissertation is submitted to **The Tamilnadu Dr.M.G.R.Medical University,** towards partial fulfilment of requirement for the award of **M.S.Degree in General Surgery (BRANCH – I).**

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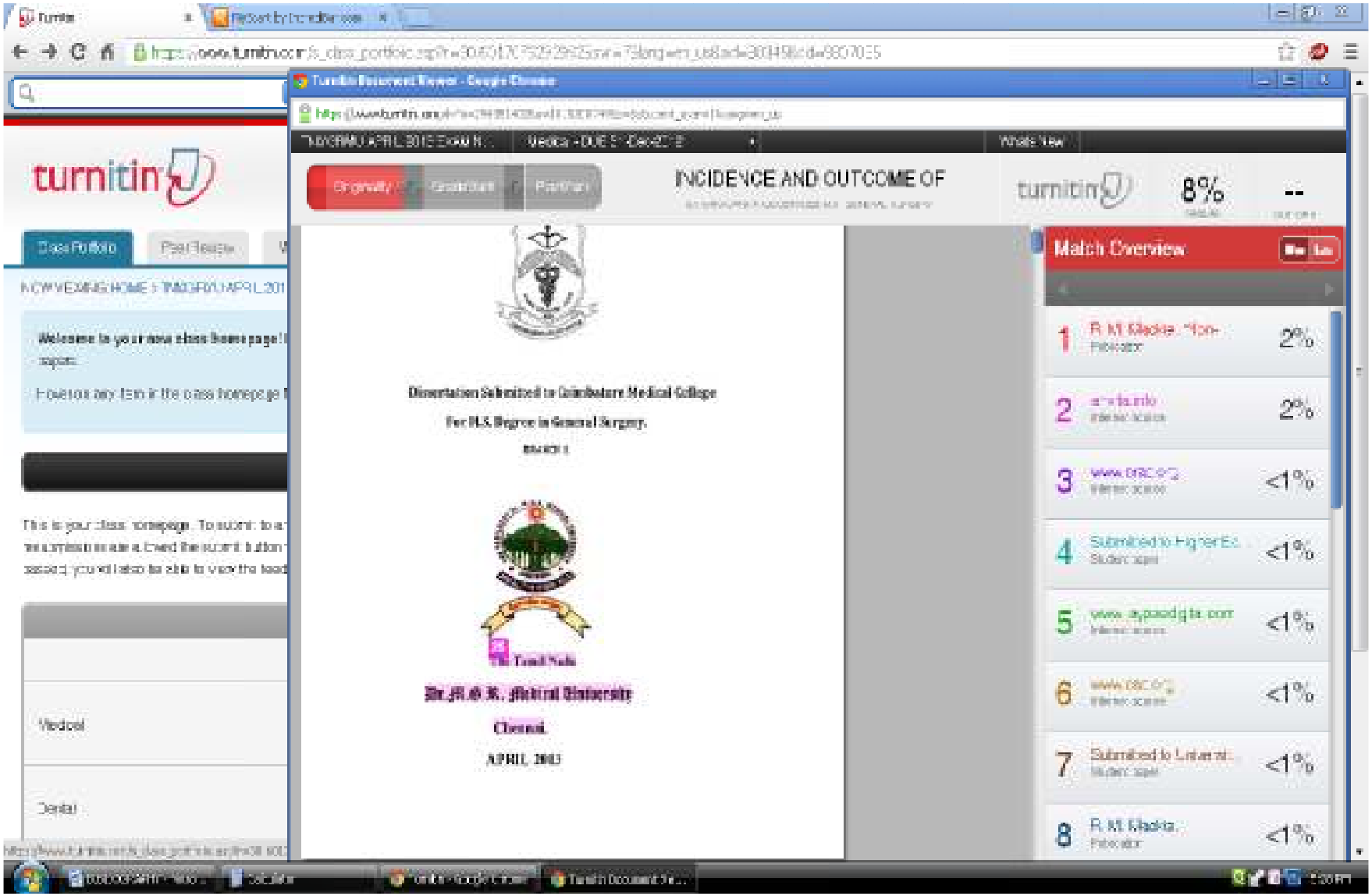
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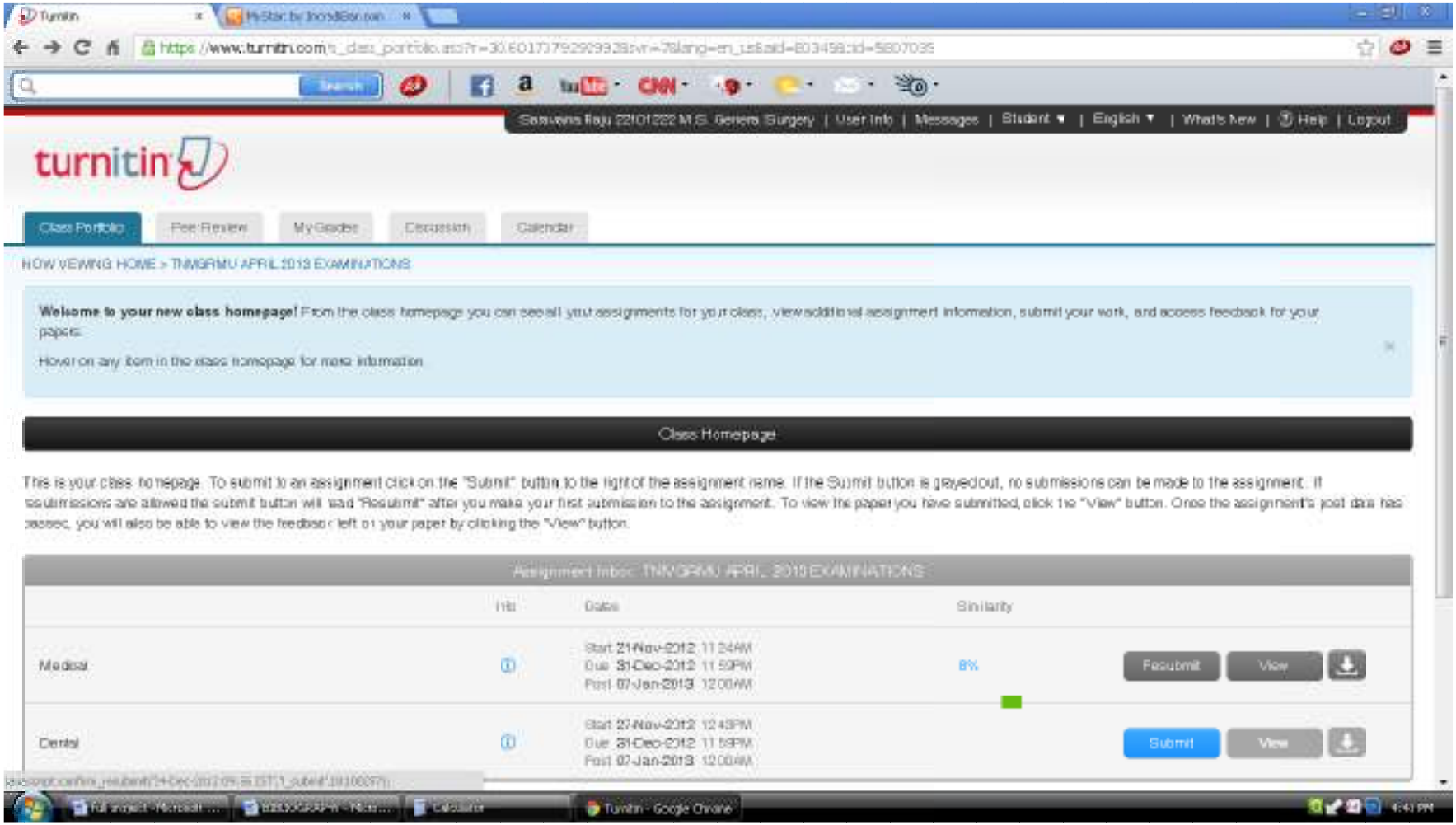
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It’s time for me to thank all my patients who have answered my queries politely in spite of their sufferings. This study would be incomplete without their co operation.

I am very much thankful to my father who made me a doctor and given the opportunity to serve the diseased in their need. I dedicate this presentation to my beloved dad.

# *Contents*

# CONTENTS

# *Introduction*

# INTRODUCTION

Skin cancers have been increasing worldwide in last few decades. Mainly occurs in sunlight exposed areas due to UVB rays of wave length of 280-320nm.Melanin has the protective effect for those UV rays causing skin malignancies. Even though Indians having low incidence of skin malignancies Non Melanoma Skin Cancers (NMSC) are in raising trend.

Exposure to chemical carcinogens like tar, arsenic, nitrogen mustard increases the risk of skin malignancies. HPV infection, Immunologic dysfunction, radiotherapy over skin lesions, immuno compromised patients receiving chemotherapy those with HIV/AIDS, immunocompromised transplant recipients, chronically irritated non healing ulcers also having elevated risk of developing cutaneous malignancies.

Basal Cell Carcinoma (BCC), Squamous Cell Carcinoma (SCC), Malignant Melanomas are the common cutaneous malignancies, having their malignant potential in their ascending order. In India SCC is more common than BCC.

Early diagnosis and appropriate treatment of cutaneous malignancies not only reduces the morbidity and also provides good quality of life and survival of the individuals.

# *Objectives of the Study*

## OBJECTIVES OF THE STUDY

1. To study about the incidence, clinical and anatomical presentations of various types of cutaneous malignancies and its histological features.

2. To study about the various appropriate treatment modalities available in our hospital.

3. To study about the morbidity and mortality with available facilities and modalities of treatment.

# *Methodology*

# METHODOLOGY

**Men and material:**

Study population taken up from patients in Coimbatore Medical College Hospital, Coimbatore, from the department of surgery, dermatology and plastic surgery with due permission obtained from the collaborating departments.

**Period of study:**

With the guidance of professor. **Dr.V.Elango M.S, FAIS.,** the study was conducted between September 2011 –November 2012.

**Study Type:** Observation Study

**Inclusion criteria:**

1) Adult patients with chronic non healing skin ulcers,
2) Suspected cutaneous malignant lesions,
3) Patients with sudden increase in size or colour change in pre existed mole.

**Exclusion Criteria:**

1) Age < 18yrs,
2) Pregnant women,
3) Psychiatric patients,
4) Other malignancies and malignancies of external genitalia and anal region.

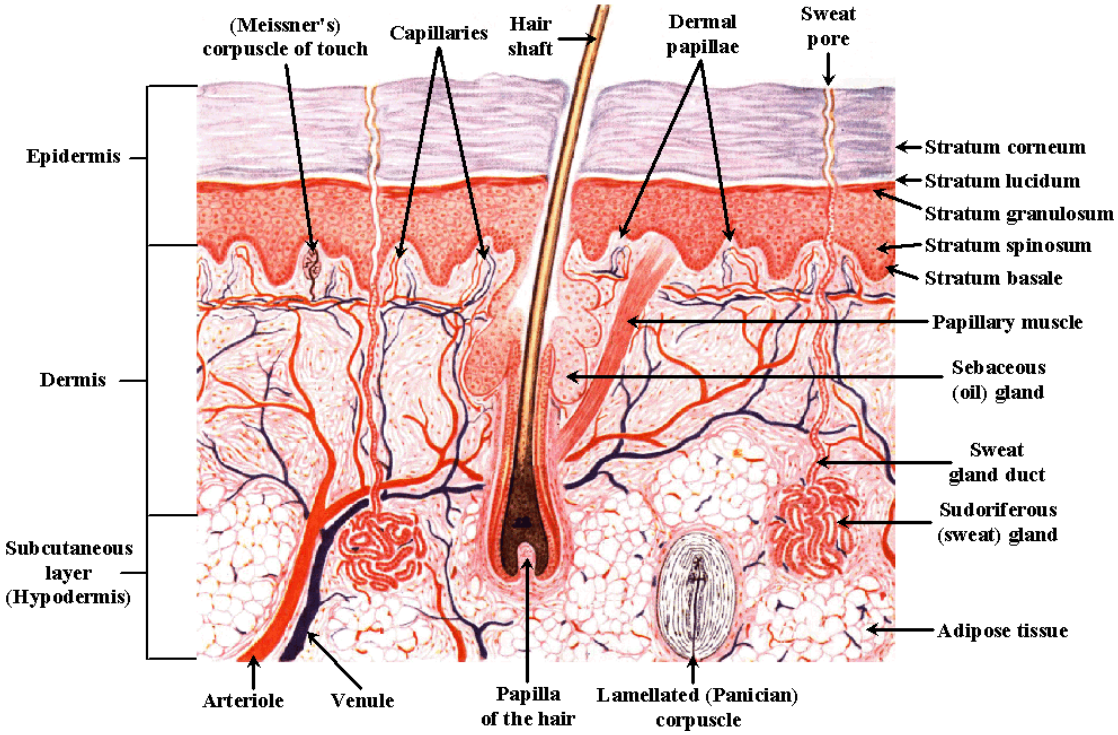
Informed consent was obtained from the patients. Proforma was duly filled and detailed history was obtained. Patients with chronic non healing skin ulcers and with suspected cutaneous malignant lesions were examined and diagnosed clinically. Initially the patients were subjected for biopsy from the lesions, routine basic investigations, vctc, Chest X ray; ECG, usg abdomen, CT scan and fnac from nodes for reliable patients were done. For small single lesion excision biopsy was done as diagnostic and therapeutic procedure.

Specimens sent for histopathological examination correlated with clinical diagnosis.

Patients were treated as in patients as well as opd. Studies were conducted on various types of skin malignancies diagnosed, their incidence, various modalities of treatments executed in cmch and their outcome. Patients were followed periodically after the discharge. Analysis data were reported according to age, sex distribution, various types of skin malignancies among them, anatomical presentation and their distributions, procedures done and the outcome.

# *Review of Literature*

# ANATOMY OF SKIN



# REVIEW OF LITERATURE

## ANATOMY OF THE SKIN

Skin is not only just an envelope of the human body but also a largest organ. Surface area ranges from 0.25 square meters in new born and about 1.8 square meters in the adult .Accounts for 15% of total body weight. Skin consists of two components,

**1. Epidermis** (Surface ectoderm)

**2. Dermis** (Mesoderm)

Epidermis consists of stratified squamous epithelium. The cells in this layer as they mature move from the basal layer towards the surface. Neoplasms develop following the disturbance of cell maturation. Layers of epidermis are five in number.

**1. Basal Layer**

**2. Stratum Spinosum**

**3. Stratum Granulosum**

**4. Stratum Lucidum**

**5. Stratum corneum**

### 1. BASAL LAYER:

It is the deepest layer, known as ***stratum basale.*** Made up of single layer of columnar epithelium rests over the basal lamina. Basal layer

contains stem cells which produces keratinocytes hence called as ***germinal layer / stratum Germinativum.***

**2. STRATUM SPINOSUM:**

Otherwise known as ***Malphagian layer.*** This layer is formed by several layers of polygonal keratinocytes over the basal layer. The cells are attached to each other by desmosomes. The keratinocytes in this layer are known as ***prickle cells.***

**3. SRATUM GRANULOSUM:**

This layer consists of 1-5 layers of flattened cells with deeply staining granules in their cytoplasm. Granules consist of protein known as *keratobyalin*. Nuclei in this layer are condensed and dark staining.

**4. STRATUM LUCIDUM:**

This layer is so called because of its homogenous appearance; the cell boundaries being extremely indistinct. Lies superficial to the stratum germinatum.

**5. STRATUM CORNEUM:**

This is the superficial acellular layer of the epidermis. This layer is made of flattened scale like elements known as *squames*. They contain keratin filaments embedded in proteins. The squames are held together by glue like material contains lipids and carbohydrates. Presence of lipids

resists the permeation of water. The thickness of this layer is more in friction areas like palms and soles. Stratum Corneum, Stratum Lucidum, Stratum Granulosum together known as zone of keratinization / cornefied zone.

**Pigment system:**

Pigment (melanin) in the epidermis is produced by melanocytes, which are the derivative of neural ectoderm. Melanin is transferred by phagocytosis into the adjacent keratinocytes. The increase in skin pigmentations produced by the exposure to sunlight is due to increased production of the melanin and not due to increased production of melanocytes.

**DERMIS:**

This is the supportive layer of epidermis and adnexa. Provides nourishment to them. Composed of blood vessels, lymphatics and network of sensory and vasomotor nerves.

**Layers of the dermis:**

**1. Superficial Papillary layer:**

Contains fine collagen, elastic and reticulin fibers. These fibers run vertical to the skin surface. They supports to the capillary loops, lymph vessels and nerve endings.

**2. Deeper reticular layer:**

Contains network of thick collagen bundles. They run parallel to the skin surface. They contribute to the Langers cleavage lines. Surgical incisions along these lines will produce minimal scar on healing.

**Basement membrane:**

The lamina between the epidermis and dermis is known as basement membrane. Carcinoma insitu by crossing this lamina changes into invasive carcinoma.

**SKIN APPENDAGES:**

Sweat glands, Sebaceous glands, Hairs and Nails. These are the specialized derivatives of the epidermis.

**Sweat glands:**

These are coiled tubular structures that extend into dermis and sub cutaneous tissue. They are seen in both the hairy and non hairy areas except in the lips, margins of nipple, labia minora, inner surface of prepuce and glans penis. They are abundant in face, palms and soles. These glands are supplied by cholinergic fibers in sympathetic nerves. They secrete an odourless fluid (sweat) on the skin surface. Bacterial action is responsible for the odour.

**Apocrine glands:**

These are the modified sweat glands mostly seen in axilla, areolae, sub umbilical, genital and perianal regions. They are supplied by adrenergic fibers in sympathetic nerves. They secret viscous odoriferous fluid into the hair follicle.

**Sebaceous glands:**

These are small saccular structures, open into the side of hair follicles. On the skin of lips, nipple, areolae, inner surface of prepuce, glans penis, labia minora are the areas where directly opens on to the surface. They liberate sebum into the hair follicles. These glands are absent in palms and soles.

**Hairs:**

These are the hard type of keratin. Developed from the hair matrix, which extends to the dermis and sub cutaneous tissue. Hair follicle is the invagination of the epidermis. Terminal expansion of hair follicle is known as hair bulb, where the hair growth takes place. Hair follicle with its sebaceous glands and erector pili muscle together known as ***Pilosebaceous unit.***

**Nails:**

These are the keratin structures. They grow from transverse infolding of epidermis into dermis. Nail bed contains rich in blood and nerve supply.

**VARIOUS TYPES OF SKIN LESIONS:**

| | | |
|---|---|---|
| **MACULE** | **:** | Circumscribed flat lesion. |
| **PAPULE** | **:** | Circumscribed elevated area up to 5mm |
| **NODULE** | **:** | Papule between 0.5 to 2 cm, deep seated, involves the lower dermis & subcutaneous tissue. |
| **SCALE** | **:** | Loosened, imperfectly cornefied, parakeratotic superficial layer. Shed as fine flakes. |
| **CRUST** | **:** | Residue of dried blood, serum, pus, and bacterial derbies |
| **ACANTHOSIS** | **:** | Thickening of stratum Spinosum due chronic irritation. |
| **HYPER KERATOSIS** | **:** | Thickening of stratum corneum. |
| **PARA KERATOSIS** | **:** | Persistence of nuclei in stratum corneum with reduction in granular layer. |
| **DYSKERATOSIS** | **:** | Distinctive alteration of epidermal cells., |

| | | |
|---|---|---|
| **MALIGNANT DYSKERATOSIS** | **:** | Hyperchromatism, polarity changes, increased mitotic activity, enlargement of nuclei and nucleoli. |
| **PSEUDO EPITHELIOMATOUS HYPERPLASIA** | **:** | Pronounced acanthosis with down growth of rete pegs. |

# AETIOLOGY OF THE SKIN CANCER

## NON MELANOMATOUS SKIN CANCERS (NMSC)

- **Multifactorial**

a) Environmental factor,

b) Chemical carcinogens,

c) Viral factors,

d) Radiation,

e) Chronic irritation,

f) Chronic inflammatory skin diseases.

**ENVIRONMENTAL FACTOR:**

Exposure to the sunlight is the responsible for the development of skin cancers. UV-B radiation is a carcinogen acts as both initiator and promoter, the wave length ranges from 280nm-320 nm. The wave length of 290-300 nm is the potent carcinogenic, produces basal cell carcinoma, squamous cell carcinoma and melanoma. Fair and thin skinned persons having higher incidence of developing skin cancers than darks.

**Mechanism:**

By affecting the processing of antigen by langerhan's cells and Tcell proliferation, by altering the production of keratinocytes derived factor. Keratinocytes and Langerhan cells are damaged. Cellular changes involved in DNA mutations which produce abnormal pyramidine dimmers lead to skin cancers. Xeroderma Pigmentosum is an autosomal recessive disorder, in which deficit in repair of DNA defect caused by UV rays. These patients has high incidence of developing NMSC and Melanoma cancers.

**CHEMICAL CARCINOGENS:**

Chronic ***arsenic*** exposure due to contaminated drinking water, **herbicides** and **pesticides** can produce multiple SCC and BCC. Chronic exposure to ***soot*** causes the scrotal cancer (SCC) in chimney sweepers. Topical ***coal tar*** use with UV rays for inflammatory skin disorders in the past, medications such as ***Fowler's solution***, ***Quinacrine therapy*** may cause SCC.

**VIRAL ETIOLOGY:**

***Human Papilloma Virus*** 5, 16, 18 can produce SCC more in immuno suppressants and transplant recipients. Warty lesions over the external genitalia may be changed into SCC (Verrucous type).

***Cyto megalo virus*** in aids patients may cause Kaposi's sarcoma.

**RADIATION:**

Post radiation skin cancers are more aggressive. Radiotherapy used for the treatment of acnevulgaris, tenia capitis and for facial hairs in the past leads to radiation dermatitis has the high incidence of SCC, BCC and spindle cell carcinoma.

**CHRONIC IRRITATION:**

BCC having higher incidence than SCC in tumors arising from the vaccination scars. SCC may arise from, ***repeated trauma*** over the non healing ulcers; burnscar ulcers (marjolin's), discharging sinuses of osteomyelitis and chronic leg ulcers (venous stasis ulcers), fistulous tracts and amputated stumps,

***Chronic heat injury*** - Kashmir Kangri cancer over the lower abdomen and thigh, Kang cancer over the buttocks heels and elbow, scrotal cancer in chimney sweeper, saree or dothi cancer of abdominal wall, carcinoma of lower lip known as agricultures cancer.

**CHRONIC INFLAMMATORY DISEASES of the skin:**

Discoid lupus erythematosis, Bullous disease with repeated sloughing, chronic hypertrophic lichen planus has increased incidence of developing SCC.

## MALIGNANT MELANOMA

About 50% of melanoma develops from preexisting mole. Etiological factors are,

a) Sunlight

b) Host factors

c) Heriditary

d) Naevi

e) Hormonal factors

### SUNLIGHT:

Intense, intermittent sun light exposure on non sun acclimatized skin areas has high risk of developing malignant melanoma.

### HOST FACTORS:

Light complexion

Light eyes (Blue / Green)

Blond / Red hair

Tendency to tan poorly and sun burns easily

Blistering sun burns in childhood, P 16 –CDK 4 gene mutation

### HERIDITARY:

a) Xeroderma Pigmentosum

b) Albinism

c) Li-Fraumen's Syndrome

d) Dysplastic Nevus Syndrome. These are the conditions associated with high incidence of melanoma cancers. About 10%- 14 % runs in family.

**NAEVI:**

The conditions associated with melanoma are,

a) Congenital giant naevi

b) Junctional Naevi

c) Large number of naevi / dysplastic lesions

d) Atypical naevi

**HORMONAL FACTORS:** Role of hormones is unclear. But has a role in female.

In general, individuals with one type of skin cancer develop a new or recurrent skin cancer within 18 months, with life time risk of 22-50%. Immuno compromised patients, renal transplants receiving immuno suppressant having high risk of developing skin cancers. The later having 35 times higher risk for SCC and 7 times of increased risk for combined cancers. Patients with tobacco use, chronic lymphocytosis, leukemia also have higher incidence of developing skin cancers.

Socio economic status, climate, life style, ethnic origin are the risk factors interact with the sun exposure.

## PRE MALIGNANT CONDITIONS

The premalignant conditions of NMSC are epithelial in origin. They are commonly with characteristics of chronic inflammatory infiltration in to papillary dermis.

They are more prone to develop cancers.

1) **Actinic Keratosis / Senile keratosis /Keratosis Senilis.**
2) **Cutaneous Horn.**
3) **Bowen's disease.**
4) **Disseminated superficial 'actinic' parakeratosis.**
5) **Erythroplasia of Queyrat.**
6) **Bowenoid papulosis of the genitalia.**
7) **Xeroderma Pigmentosum.**
8) **Leckoplakia.**
9) **Intra epithelial carcinoma of the eyelid margins.**
10) **Leukokeratosis of the lips.**
11) **Radio dermatitis.**
12) **Arsenical keratosis.**
13) **Congenital dermatosis.**
14) **Paget's disease of skin.**
15) **Tar keratosis.**

**ACTINIC KERATOSIS / SENILE KERATOSIS / KERATOSIS SENILIS:**

These are multiple, irregular, small scaly / warty lesions seen over the sun exposed areas due to hyperkeratosis. **Clinically,** they are usually dry, rough, and adherent and appear dirty brown in colour. The lesions occur in fair skin individuals with in middle ag groups. **Sites:** Mostly seen over face, back of hands and forearm. Especially ears in male. Malignant changes occurs in very few. The lesions with the induration at the base will progress into squamous cell carcinoma within years. They are slow growing and rarely metastaize. **Pathologically,** dyskeratosis of Basal and Malphagian layers seen. The cells are hyper chromatic with mitosis and loss of polarity. The nuclei are irregular in size and shape.

**Differential diagnosis:**

a) **Seborrhoeic keratosis**
b) **Solar Keratosis**
c) **Bowen's disease**
d) **Superficial BCC**
e) **Discoid Lupus Erythematosis**
f) **Psoriatic Seborrhoeic dermatitis.**

**TREATMENT: Depends upon the lesion.**

1) **Cryotherapy** : For superficial lesions. Liquid nitrogen is used.

2) **Curettage / diathermy** : Best to treat horny lesions.

3) **Excision biopsy** : Usually done for large and indurative lesions.

4) **Systemic drugs** : Retinoid (Isotrentoin) for 3 to 6 months.

5) **Topical drugs** : Used to treat multiple lesions on the face. ***5Fluro Uracil (5FU)*** cream twice daily for 3 to 4 weeks.

6) **Others** : ***INF alpha II, Beta /Gamma Interferon.*** Intralesional admistration twice weekly. For 3 to 4 weeks. Effective for treating the lesions not able to be treated by above methods.

**7). Radiotherapy** : Contraindicated.

**CUTANEOUS HORN:**

This is a clinical diagnosis by its appearance and its clinical course. Horny plugs or out growths may be due to various epidermal changes. Horns are usually friable in nature. **Caused** by epidermal naevi, viral warts, molluscum contagiosum, kerato acanthoma, Seborrhoeic keratosis and marsupialized epidermoid or trichilemmal cyst. **Clinically,** the lesion appears mostly in sun exposed areas mainly over the upper part of face and ears. The lesion is usually single or multiple. They are hard yellowish brown horn, curved and having circumferential edges. Inflammation of the base is due to recurrent trauma. Inflammation and induration reflects the underlying malignant transformation. **Pathologically,** the epidermal cells appear with normal polarity. Granular layer may be deficit /absent. In long standing lesions budding from basal layer indicates the development of SCC.

**BOWEN'S DISEASE:**

It is a ***squamous cell carcinoma of intra epidermal form*** with small invasive malignant potency. They appear as persistent, progressive, usually non elevated, red, scaly, or clustered plaque. Occasionally spontaneous partial regression occurs.

***Exposure to sun light and arsenic*** are the common etiological factors. Mostly occurs in whites, over the ***lower legs*** of ***elderly women***.

Within 6 to 7 years about 50% of the patients develop skin malignancy. **Clinically,** the initial lesions are asymptomatic. They are seen as small red, scaly areas. They gradually and irregularly enlarge in size. The scale is white or yellowish in colour can be easily detachable without any bleeding from the surface leaving moistened reddened surface. The margins well defined. The lesion slightly raised and surface usually flat but may be hyperkeratotic or crusted. Ulceration usually denotes the invasive growth. Pigmentation /punctate palmoplantar keratosis are the features of chronic *arsenicalism* suggests of visceral malignancy mainly in lung. **Pathologically,** atypical proliferation of squamous cells throughout the whole thickness of the epidermis is seen. Disturbance of the epidermal organization, premature keratinization of cells with loss of their intercellular connection are the other features. Arsenical Bowen's disease is charecterised by numerous vacuolated atypical cells.

**Differential diagnosis:**

a) **Lichen simplex.**

b) **Psoriasis**

c) **Papulosquamous dermatosis**

d) **Superficial (pagetoid) BCC**

**TREATMENT:**

Depends upon site, size and number of the lesions, previous treatment, various treatment experiences etc.

1) **Surgical Excision:** Best modality of treatment for smaller lesions, poor wound healing sites, digital lesions, perineal lesions and to overcome recurrence.
2) **PDT (Photo Dynamic therapy), Laser destruction.**
3) **Cryo surgery, Curettage and cautery.**
4) **Radio therapy** in full tumor dose.
5) **5 FU 5%** cream once daily for 4 to 8 weeks, once weekly in case of prolonged treatment**, imiquimode** topical application for smaller lesions.

**DISSEMINATED SUPERFICIAL 'ACTINIC' POROKERATOSIS:**

This is an inherited autosomal dominant condition. Mostly seen in white female of forties. Lesions occur over the sun exposed areas and more during summer, better during winter. Defective gene is on chromosome 12 and 15.Initial lesion will be brownish red / brown conical papule, later spreads and ulcerates. Condition worsened by sun light exposure. Pathologically malignancy not reported. Treated by cryotherapy.

**ERYTHROPLASIA OF QUEYRAT:**

This is the insitu squamous cell carcinoma of Bowen's disease that affects the glans or prepuce of the penis. More common in uncircumcised individual of more than 40 years of age. Caused by the HPV variants. **Clinically** the lesions appear as a single or multiple, fixed, well-circumscribed reddish plaques. They are erythematous, moist and velvety or smooth. The diagnosis is confirmed by biopsy.

Once the diagnosis is confirmed sex partner(s) of the diseased to be evaluated. Because of the tendency to develop pre invasive or invasive carcinoma of cervix or anus. The progression in to invasive SCC is more commoner, more aggressive and early to metastizse than Bowen's disease of non genital skin.

**Differential diagnosis:**

a) **Zoot balanits**
b) **Candidiasis**
c) **Penile Psoriasis**
d) **Paget's disease**
e) **Irritant balanitis.**

**TREATMENT:**

1) **Topical** therapy by using 5% 5FU cream once a day under occlusion, 5% Imiquimode cream once daily 3 days in a week for 3 to 12 weeks will be effective.
2) **Surgical excision**, laser and DPT are effective for the lesions not cured.
3) **Radiotherapy.**

**BOWENOID PAPULOSIS OF THE GENITALIA:**

This is a localized form of in situ SCC due to high risk HPV 16 and 18. The lesions clinically appear as benign with histopathological malignant features. Treated by excision, cryosurgery, electro coagulation and 5 FU topical applications.

**XERODERMA PIGMENTOSUM:**

This is a rare inherited, autosomal recessive disorder due to deficit in repairing the DNA defect caused by UV rays. They are more prone to develop multiple cutaneous and internal malignancies at the earliest age and lead to death at their earliest 20s. It is very rare in India. Characteristically they are photosensitive with the pigmentary changes all over the body more over the sun exposed areas of skin.

Premature aging of skin is present. They may develop pre-neoplastic and neoplastic lesions. BCC, SCC and Melanoma are more common at the earliest childhood age.

**Pathology:**

On exposure to UV rays the linkages between the adjoining DNA helices with abnormal pyramidine dimmers are formed. By the series of enzymes they are normally excised and the continuity of the helices is restored. In XP there is defect in this DNA repair.

**Diagnosis:** The diagnosis of XP is by the effective clinical examination of the patients with the family history of XP.

**Eye examination will reveal:**

- **Clouding of the cornea**
- **Keratitis**
- **Lid tumor**
- **Blepharitis**

**Before the child birth:** The diagnosis can be made by the following procedures:

- **Amniocentesis,**
- **Chorionic villous sampling,**
- **Amniotic cell culture.**

**After the child birth:**

- **Skin biopsy**
- **Skin fibroblast culture.**

**TREATMENT:**

1) Protection from sunlight exposure.
2) Covering with cloths, applying sun screen lotions, etc.
3) Premalignant lesions may be treated by excision, Cryo surgery, Topical 5FU, oral isoretinoin, chemo surgery / intra lesional INF α.
4) Genetic counseling is important in prevention of XP.

**LEUKOPLAKIA:**

These are the premalignant lesions usually seen in the mucous membranes of mouth, rectum and vulva. These are whitish hyperkeratotic patches. Initial hyper keratosis with marked acanthosis followed by dyskeratosis further, progress into carcinoma in situ. Biopsy is mandatory for all doubtful lesions.

**INTRAEPITHELIAL CARCINOMA OF THE EYELID MARGINS:**

Due to the occupational exposure to oil and grease. Dysplastic changes are noted in biopsy. The lesion invades the cilliary adnexa and causes loss of eye lashes and nodularity of the margin. SCC may occur, excision is the treatment of choice.

**LEUKO KERATOSIS OF THE LIPS:**

Known as actinic keratosis. Lower lip mainly affected due to prolonged and excessive exposure to solar radiation. Persistent dry scaling with tendency to fissure. Atrophic changes also seen. Progression into SCC is more common.

**TREATMENT:**

Surgical excision, Cryo surgery, $CO_2$ laser ablation, Electro surgery and topical 5% 5FU application and DPT.

**RADIO DERMATITIS:**

In early radio dermatitis initial erythematous lesion progresses into desquamation and pigmentation. In case of higher doses ulceration occurs. In later stage atrophy, irregular hyper pigmentation will be seen. Telengiectasia, hair loss also occurs. SCC may develop.

**ARSENICAL KERATOSIS:**

This is the premalignant condition caused by chronic exposure to arsenic. Corn-like punctate keratosis mainly affects the palms and soles. Initial small enlarge, thicken and enlarge in number. They may extend cause involvement of fingers, dorsum of the hands and proximal portion of extremities. Eventually leads to SCC. Induration, inflammation and ulceration indicate the malignant transformation.

**Pathological** feature ranges from benign hyperplasia / dysplasia, mild / moderate atypia to frank Bowen's disease. Differentiated from punctate keratosis, which usually appears in younger age.Darier's disease and lichen planus use to have the lesions in other areas too.

**TREATMENT:**

Multiple lesions are difficult to treat. Topical keratolytics, oral acetretin may be beneficial.

**CONGENITAL DERMATOSIS:**

This is the cutaneous condition known as congenital erosive and vesicular dermatosis. Generalized erosions, vesicles, crusting and "sealed skin-like" erythematous areas are the characteristic features. It involves 75% of the total body surface.

**PAGET'S DISEASE OF SKIN:**

This condition, which represents the underlying malignancy. Lesions are unifocal or multifocal. Areas most commonly involved are groin and axilla.

**Clinically and pathologically** the findings are similar to that of Paget's disease of breast. Hyperkeratosis, parakeratosis, acanthosis and pale vacuolated Pagets cells are seen in supra basilar epithelium. They

may or may not invade the dermis. Invasive type has high metastatic rate with poor prognosis.

**TREATMENT:**

**Excision** is the choice of treatment, Mohs surgery, cryosurgery, laser, radiotherapy, DPT and 5% imiquimode cream also used. **Recurrence rate is very high.**

**TAR KERATOSIS:**

It is a very rare condition of the workers with tar and pitch. There are small keratotic plaques with benign acanthoma features. The lesions confined to the scrotum are potentially malignant.

**FAMILIAL CANCER SYNDROMES:**

1) **Nevoid basal cell carcinoma syndrome.**
2) **Follicular atrophoderma and Basal cell carcinoma.**
3) **Rombo syndrome.**
4) **Self healing epitheliomas.**
5) **Muir – Torre syndrome.**

**NAEVOID BASAL CELL CARCINOMA SYNDROME (NBCCS) BASAL CELL NAEVUS SYNDROME / GORLIN'S SYNDROME:**

It is an inherited autosomal dominant disorder. Individuals with this disorder will develop multiple BCC with various phenotype

abnormalities. Affected will present with **large forehead which is characteristic,** jaw cysts, rib abnormalities (bifid / splayed), vertebral (scoliosis / kyphosis) and other skeletal abnormalities (spina bifida occluta). Associated with palmo-plantar pits. Macrocephaly with intra cranial abnormalities namely corpus collosum dysgenesis and calcification of falx cerebri are the other features. The NBCCS gene was mapped to chromosome 9q22.3-3.1. **Clinically,** lesions mainly confined to upper face (eye lids, nose, and cheek). The neck, trunk and axillae are the frequent sites.

The skin manifestations are BCCs, skin tags, palmoplantar pits, milia and dermal naevi like lesions. The lesions vary from 1mm -1.5 cm in size. Macroscopically the lesion appears as smooth surfaced, rounded, elevated papules, more pigmented. The tumors of axillae, neck and eyelids may be pedunculated.

Other less common associations are syndctyly, shortened metacarpals, cleft lip and palate, mysentric lymph cyst, bicornuate uterus, hypo gonadism. Ocular manifestations like dystopia canthorum, cataracts, and congenital blindness.

Variety of CNS disorders may develop. Apart from BCCs they are more susceptible for rabhdomyosarcoma, ovarian and cardiac fibroma, medulloblastoma. **Pathologically,** they mimic BCCs. Deeper penetration,

ulceration and invasion with lymphocytic infiltration may occur.

**TREATMENT:**

**Excision** is the choice of treatment for all the possible cases. **Radiotherapy** is contraindicated for the acceleration of new BCCs.

**FOLLICULAR ATRPHODERMA AND BASAL CELL CARCINOMA:**

It is a rare genodermatosis, known as Bazex's syndrome which produces multiple BCCs.

**ROMBO SYNDROME:** This rare autosomal dominant syndrome is charecterised, along with BCCs, vermiculate atrophodermia, milia, trichoepithelioma, and hypotrichiosis with peripheral vasodilatation

**SELF HEALING EPITHELIOMAS (Multiple self healing epithelioma of Ferguson - Smith):**

An autosomal dominant disorder, with intermittent development of skin tumors which regress spontaneously. Histopathologically identical with well differentiated SCC.

**MUIR-TORRE SYNDROME:**

This is an autosomal dominant disorder, characterized by the presence of sebaceous neoplasms with internal malignancies. Mostly

associated with colonic carcinoma. Sometimes also associated with SCC, BCC, Keratoachanthoma and Actinic Keratosis.

**PREMALIGNANT CONDITIONS OF MELANOMA:**

1) **Dysplastic naevus syndrome**
2) **Junctional naevus**
3) **Axial Giant congenital naevi**
4) **Blue Naevus**
5) **Hutchinson's freckling**

**DYSPLASTIC NAEVUS SYNDROME (ATYPICAL MOLE SYNDROME):**

The naveus are large in numbers and larger in size. They are irregular in size and margins with brownish pigment. They present anywhere in the body surface. About 10% may turn into less invasive melanoma. Pathologically Excessive mitosis, multiple active Junctional naevi with cytological atypia is seen.

**JUNCTIONAL NAEVUS (DERMO - EPIDERMAL NAEVUS / MARGINAL NAEVUS):**

It is a pigmented or cellular naevus with Junctional activity. May be single or multiple seen over the extensor aspects of extremities and the ventral aspect of genitalia. They appear as flat, smooth and hairless mole. Dark-brown or brown in colour. The clusters of cells in basal and prickle

layer are enlarged and loosely attached with other cells. The nuclei of Junctional naevi show atypia with mitosis. Compound naevus may turn into malignant very rarely.

**AXIAL GIANT CONGENITAL NAVEUS (GARMENT or BATHING TRUNK NAEVUS):**

Mostly seen over the lower back and back of thighs. Large numbers of small congenital naevi also will be there. As the infant grows, the involved areas will become thicker and darker. The surface becomes rough and warty nodular lesions will appear. As the age advances hairy component will be more. They usually associated with spinabifida, meningocele and club foot. Von Recklinghausen's disease, vascular naevi also the associated conditions.

**BLUE NAEVUS:**

It's a rare benign tumor considered as a premalignant, rarely become malignant. Excision is the treatment of choice.

**TREATMENT:**

**Prophylactic surgical excision** should be done before the age of five because of their malignant potential. In deep shave procedure recurrence will be more.

# CLASSIFICATION

## BENIGN EPIDERMAL TUMORS:

1) Seborrhoeic Keratosis
2) Stucco Keratosis
3) Skin tags
4) Dermatitis Papulosa nigra
5) Haber's syndrome
6) Melanoacanthoma
7) Keratoacanthoma
8) Clear cell acanthoma
9) Generalized eruptive Keratoacanthoma
10) Pseudo epitheliomatous hyperplasia

## CYSTS OF SKIN:

1) Epidermal cyst
2) Trichilemmal cyst
3) Milium
4) Steatocystoma multiplex
5) Premalignant fibro epithelial tumor of pinkus.

## BENIGN TUMORS OF THE SKIN APPENDAGES

### Hair Follicle Tumors:

- Inverted follicular keratosis
- Follicular infundibulam tumors
- Pilar sheath acanthoma
- Trichoadenoma
- Comedo naevus

**External Root Sheath Tumor:**

- Trichilemmoma
- Trichillemal cyst
- Proliferating trichilemmal tumor

**Hamartomas and hair germ tumors and cysts:**

- Tricho blastoma
- Hair follicle naevus
- Tricho folliculoma
- Tricho epithelioma
- Dermoplastic Trichoepithelioma
- Solitary cyst Trichoepithelioma
- Eruptive villous cyst
- Cutaneous lymphadema
- Basiloid follicular hamartoma

**Hair Matrix Tumor:**

- Pilomatrixoma

**Hair Follicle Mesenchymal Tumor:**

- Trichdiscoma
- Perifollicular fibroma
- Fibro folliculoma

**Sebaceous Gland Tumors:**

- Sebaceous adenomas and sebaceomas
- Superficial epithelioma with sebaceous differentiation

**Apocrine Gland Tumor:**

- Apocrine hidrocystoma
- Apocrine tubular adenoma
- Syringocystadenoma paailliferum
- Hydradenoma papilliferum

**Eccrine Gland Tumors:**

- Eccrine hidrocystoma
- Hidroacanthoma simplex
- Eccrine poroma
- Eccrine dermal duct tumor
- Eccrine syringe fibradenoma
- Syringoma
- Papillary Eccrine adenoma

**Eccrine or Apocrine / Follicular Tumors:**

- Hidradenoma
- Cylindroma
- Spiradenoma
- Mixed tumor of the skin.

**Malignant Skin Conditions: Classified as,**

- Epidermal
- Dermal
- Skin appendage tumors
- Metastatic tumors.

**Epidermal Malignancies:**

**Non Melanoma Skin Cancers:**

- Basal cell carcinoma (BCC)
- Basosquamous carcinoma (BSC) / Metatypical Basal cell carcinoma
- Squamous cell carcinoma (SCC)
- Malignant Melanoma / Melano carcinoma

**DERMAL MALIGNANCIES:**

**Fibrous Tissue Tumor:**

- Dermatofibro sarcoma protubrens

**Tumors of Blood Vessels:**

- Angiosarcoma,
- Hemangiopericytoma
- Kaposi's sarcoma

**Tumors of Nerve:**

- Neurofibro sarcoma

**Others:**

- Lymphoma

**Appandage Malignancies:**

- Trichilemmal carcinoma
- Pilomatri carcinoma

- Sebaceous carcinoma
- Sweat gland carcinoma
  - Ductal
  - Apocrine
  - Follicular carcinoma

**Eccrine Gland Carcinoma:**

- Malignant eccrine poroma
- Aggressive digital papillary adenoma

**Eccrine or Apocrine /Follicular Carcinoma**

- Malignant Cylindroma
- Malignant Hidradenoma
- Malignant Spiradenoma
- Microcystic adnexal carcinoma
- Eccrine epithelioma
- Mucinous carcinoma and Adenoid cystic carcinoma

**Miscellaneous:**

- Tumors of anogenital mammary like glands
- Paget's disease of the nipple
- Extra mammary Paget's disease
- Lymphoepithelioma like carcinoma
- Merkle cell carcinoma.

**Metastatic Tumors:**

From Breast, Lungs, Stomach, Colon, Kidney, Uterus, Ovary and Prostate.

# CLINICAL FEATURES AND HISTOPATHOLGY

# BASAL CELL CARCINOMA (BCC)

**Synonyms:** Rodent ulcer, Basilioma, Basal cell epithelioma.

**Definition:**

It is a locally invasive, most common type of malignant skin tumor which arises from basal layer of the epidermis. These are the slow growing which rarely metastaize. BCC is more common in males than females.

**Histiogenisis:**

The tumor arises from the pluripotentiality of immature cells of the epidermis. They mature towards any of the epithelial structure which is governed by the connective tissue in its proximity.

**Clinical Features:**

Early tumors presents as a nodule in the substance of skin. They appear small translucent / pearly, raised and rounded areas. Few telengiectatic vessels run over the surface, seen in cystic type. Advanced tumors have various forms with initial nodular appearance. Ulceration occurs at the latter stage. The surface becomes irregular as the tumor grows. In case of superficial spread the tumor will have thread-like raised margin with irregular border.

In atypical *rodent ulcer*, the edge and base are indurated. Edges of the tumor are raised. In the areas like nasolabial fold the edges are flushed with the surface. Floor of the ulcer is below the level of the surface and appears fleshy with poor vascularity. Surrounding area is inflamed. The ulcer spreads deeper and destructive in nature commonly in the areas of eye, nose and ears.

In more advanced cases the lesion erodes the periorbital tissues, facial, skull bones, and up to the meninges, termed as ULCUS TEREBRANS (penetrating ulcers).

**Clinical and pathological Types:**

- Nodular
- Superficial spreading
- Micronodular
- Infiltrative
- Pigmented
- Morpheaform / Sclerosing
- Basosquamous / Metatypical / Transitional carcinoma.
- Granular cell, clear cell types
- Alveolar / cystic
- Adenoid
- Keratotic
- Fibro epithelial tumor (of pinkus)

**NODULOCYSTIC / NODULOULCERATIVE:**

The commonest type of BCC. 70 % of BCCs are nodulocystic or noduloulcerative type. The solitary, nodular lesion appears over the skin remains static for years and ulcerates. Often they have telengiectatic vessels over the surface. The ulcerative type is known as rodent ulcer.

**SUPERFICIAL SPREADING:**

These are the red, scaling lesions mainly over the trunk. Slow growing and rarely metastasize.

**MORPHEAFORM:**

These are the whitish flat, plaque like lesions. Aggressive in nature. Should be treated promptly.

**PIGMENTED:**

Darkly pigmented, nodulocystic lesion. To be differentiated from malignant melanoma.

**BASOSQUAMOUS CARCINOMA:**

This is the rare variant of BCC, accounts 3%. They contains features of both SCC and BCC. Regional lymphadenopathy is more common. Distant metastasis and recurrence rate is high. To be treated aggressively with adequate marginal clearance.

**Anatomical sites:**

The lesions are usually may be multiple and arise mainly from *head and neck.* Moreover the upper central part of the face.

Morphoeic form - Face ,

Superficial spreading – Trunk.

Rarely the palms and soles are affected.

**Pathology:**

The clumps of cells presented in the connective tissue stroma. They are uniform in size and ovoid. The nuclei are dark with scanty cytoplasm. The cell nests are lined by a single layer of columnar with *palisade* arrangement. The tumor cells are surrounded by the lymphocytes. In the early lesions tumor cell nests can be seen arising from the epidermis. As the tumor grows extension into the dermis is noted.

**Treatment:**

Surgical excision with adequate clearance.

# SQUAMOUS CELL CARCINOMA (SCC)

**Synonyms:** Epidermoid carcinoma, Epithelioma.

**Definition:**

It is the more common cancer in whites. Also occurs in non-whites with anatomically different presentation.

The malignant tumor that arises from the epidermal keratinocytes. Less common and more invasive than BCC. Having increased tendency to metastazise. It occurs as a single lesion in a normal skin and multifocal lesion in abnormal skin. Solitary lesion grows more rapidly, infiltrates wider and deeper than BCC.

**Pathology:**

SCC is originated from epidermal keratinocytes. SCC begins when the atypical Malphagian cells break through the basement membrane and invade the dermis.

These expand into bulb like masses. In due course of time, the cells nearest to the centre undergo degenerative changes and keratin mass is formed. The central keratinization surrounded by the malignant squamous cell is called **"*CELL NEST*" or "*EPITHELIAL PEARL*"** is the characteristic of **well differentiated SCC.** About 80% of SCC is extremely well differentiated. The cells are large and polygonal in shape,

with abundant cytoplasm, vesicular nuclei and prominent nucleoli. Intercellular bridges are well developed.

**Poorly differentiated SCC:**

Anaplastic cells with basophilic cytoplasm. There is no cytological evidence of origin.

**BRODER'S CLASSIFICATION:**

By the differentiation (degree of keratinization).

**Grade I :** <25 % Undifferentiated tumor cells.

**Grade II :** 25 to 50 % Undifferentiated tumor cells.

**Grade III :** 50 to 75 % Undifferentiated tumor cells.

**Grade IV :** > 75 % Undifferentiated tumor cells.

**Clinical Features:**

SCC usually arises from the traumatized skin. The skin damages are elastosis; keratosis, irregular pigmentation and telengiectasia are caused by the sun light. Induration is the first clinical sign of malignancy. The lesion initially starts as a warty nodule and ulcerates soon. There are two types of growth patterns.

**Infiltrative type -** The ulcer with edge everted and spreads well beyond the ulcer.

**Exuberant type -** The growth produces cauliflower like ulcerating mass with minimal infiltration around the base.

**Clinical and pathological types:**

**SPINDLE CELL SCC:** Continuity of tumor cells with basal layer of the epidermis, foci of clear cut squamous change and immunoreactivity all are diagnostic of SCC.

**ADENOID / PSEUDO GLANDULAR:**

It occurs in the sun exposed areas mainly due to solar keratosis. Lack of cohesiveness (acantholysis) is the responsible factor.

**VERRUCOUS CARCINOMA / EPITHELIOMA CUNICULATUM:**

These are ulcerated, fungating polypoid mass. Commonly appears over the sole of foot. Marked acanthosis and papillomatosis are the features. This is locally potent malignant tumor, Prognosis is good.

**Clinical Types of SCC:**

- Proliferative type
- Ulcerative type
- Verrucous type
- Plaque type
- Fissure type (lips and genitalia).

**SCC may present as:**

- A slow growing, locally invasive lesion with late metastasis ( from solar keratosis)
- Rapidly growing, early metastatic lesion.

SCC from Bowen's disease, chronic ulcers and scars, chronic radiation dermatitis, from normal looking skin, genitalia and anal region are more aggressive.

**Anatomical sites:**

Lower extremities and loin are common sites in India. Sun exposed areas – back of hands, fore arm, upper part of the face. Lower lip and pinna are the more common sites in males.

**Recurrence rate is high in case of SCC more than 4mm thickness.**

**Metastasis is inevitable when the lesion is 10 mm or more in diameter.**

**American Joint Committee on Cancer system (AJCC) for classification and staging of carcinoma of skin (2002)**

**Primary tumor (T)**

Tx -Primary tumor cannot be assessed

To - No evidence of primary tumor

Tis - Carcinoma insitu

T1 - Tumor ≤ 2cm

T2 - Tumor 2.1 – 5 cm

T3 - Tumor ≥ 5cm

T4 - Tumor invasion deep extra dermal structures (cartilage ,muscle / bone)

**Regional Lymph Nodes (N)**

Nx - Regional lymph nodes cannot be assessed

No - No regional lymph node metastasis

N3 - Regional lymph node metastasis.

**Distant Metastasis:**

Mx - Distant metastasis cannot be assessed

Mo -No distant metastasis

M1 - Distant metastasis

**STAGES**

| | |
|---|---|
| **Stage 0** | **Tis , No, Mo** |
| **Stage I** | **T1, No, Mo** |
| **Stage II** | **T2-3, No, Mo** |
| **Stage III** | **T4, No, Mo or any T, N ,Mo** |
| **Stage IV** | **Any T any N, M** |

# MELANOMA

**Definition:**

It is a potent malignant skin tumor that originates from the melanocytes of dermoepidermal junction. It is a more invasive and metastatic tumor. Invasion occurs both the horizontal and vertical directions.

**Pathology:**

The presence of cytologically malignant melanocytes with invasion into dermis, areas of in situ malignant change in adjacent epidermis is the diagnostic features of superficial spreading melanoma.

The cells are with abundant acidophilic, fine granular cytoplasm. Pseudo nuclear inclusions, epithelial and spindle cell patterns of growth are the other features. The radial growth phase of intraepidermal melanocytes occurs before the dermal invasion.

**Pathological staging: 1. CLARK'S level of invasion:**

**Level 1**: Lesion confined to epidermis (insitu); rarely metastasizes; Cure rate is 100 %.

**Level 2 :** Invasion into papillary dermis, past basement membrane(localized).

**Level 3 :** Tumor filling papillary dermis (localized) and comprising the reticular dermis.

**Level 4 :** Tumor invasion of reticular dermis (localized).

**Level 5 :** Tumor invasion of subcutaneous tissue (direct extension).

**2. Thickness of the tumor:**

Measured by optical micrometer, **BRESLOW'S** tumor thickness and prognosis:

| Tumor thickness | 5 year Survival rate |
|---|---|
| <1mm | 95-100% |
| 1- 2mm | 80-96% |
| 2.1 –4mm | 60-75% |
| >4mm | 50% |

**Clinical Staging:**

| Stage | Description |
|---|---|
| I | Cutaneous lesion defined |
| IIa | Satellite nodules / transit metastasis |
| IIb | Regional nodal involvement |
| IIab | Both satellite and regional nodal involvement |
| III | Widespread metastasis |

**Clinical features :** Features suggestive of benign naevus turning into malignant are **ABCDE.**

A - Asymmetry

B - Border irregularity

C-Colour variation

D- Diameter more than 6mm

E- Elevation

**Types:**

1) Superficial spreading
2) Nodular
3) Acral Lentigenous
4) Lentigo maligna
5) Amelanotic

**SUPERFICIAL SPREADING MELANOMA:**

Common in 4th / $5^{th}$ decade. Trunk (in male) and leg (in female) are the common sites. Head, neck and foot are the less common sites. Colour of the lesion varies (brown / black / red /grey and white), irregular edges are the diagnostic features.

Notching of the margin, peripheral extension also seen. Red colour indicates inflammation / neo vascularisation. Regressing lesions are white -grey in colour. Duration of the lesion varies from few months to many years.

**NODULAR MELANOMA :**

It is an aggressive lesion, occurs more in male than female, during 5th / $6^{th}$ decade. They are elevated polypoid dome shaped or pedunculated lesions. Trunk is the more common site. Develops from the pre existing mole, enlarges rapidly and become palpable, firm nodule. Colour varies (dense black/reddish blue black). Ulceration and bleeding occurs frequently.

**ACRAL LENTIGENOUS MELANOMA:**

This is the commonest type and known as palmo plantar melanoma. Commonly seen over the palms, soles and sub-ungual regions. More common in darks than whites. Sub-ungual lesions appear as blue black discoloration of the posterior nail fold commonly thumb / big toe.

**LENTIGO MALIGNA MELANOMA:**

The least malignant form. The commonest sites are upper cheek, forehead and temple areas. Arm, hand and leg are the other less common sites. Initial lesion appears as flat, brown macule. Pigmented irregularly with areas of advancing and regressing. Colour may vary from brown to tanned black. Increase in tumor thickness and nodularity indicates malignant change.

**AMELANOTIC MELANOMA:**

This is the condition usually present with nodal metastases. Lesion is pink in colour usually contains pigmentation at the base. Positive DOPA reaction is helpful for diagnosing.

**MUCOSAL MELANOMA:**

This is a rare condition, seen over the mucosa of oral cavity, genitalia and anal region. Presence of excessive, irregular, macular pigmentation are the characteristic. Genital lesions are rare variant occurs in $7^{th}$ decade.

**SECONDARY MELANOMA WITH UNKNOWN PRIMARY:**

The sites are regional lymph nodes. They are isolated, non pigmented sub cutaneous nodules, with occult primary. Ocular and mucosal primary lesions to be ruled out. Spontaneous resolution of the primary lesion may be other reason which may be indicated by the depigmented area.

**MULTIPLE PRIMARY MALIGNANT MELANOMAS:**

More common in patients with atypical mole syndrome. Primaries may be in various anatomical sites. The second and other tumor lesions may be metastasis from the primary lesion.

**American Joint Committee on Cancer system TNM Melanoma classification (2002)**

**Primary Tumor (T)**

Tx – Primary tumor cannot be assessed

To – No evidence of primary tumor

Tis – Melanoma insitu

T1 – Melanoma ≤ 1mm in thickness with or without ulceration

T1a – Melanoma ≤ 1mm in thickness and level II or III, no ulceration

T1b – Melanoma ≤ 1 mm in thickness and level IV or V with ulceration

T2 - Melanoma 1.01 – 2 mm in thickness with or without ulceration

T2a – Melanoma 1.01 – 2 mm in thickness , no ulceration

T2b – Melanoma 1.01 – 2 mm in thickness with ulceration

T3 – Melanoma 2.01 - 4 mm in thickness with or without ulceration

T3a – Melanoma 2.01 – 4 mm in thickness , no ulceration

T3b – Melanoma 2.01 – 4 mm in thickness with ulceration

T4 – Melanoma > 4mm in thickness with or without ulceration

T4a – Melanoma > 4mm in thickness, no ulceration

T4b – Melanoma > 4mm in thickness with ulceration

**Regional Lymph Nodes (N)**

Nx – Regional cannot be assessed

No – No regional lymph node metastasis

N1 – Metastasis in one lymph node

N1a – Clinically occult (microscopic) metastasis

N1b – Clinically apparent (macroscopic) metastasis

N2- Metastasis in 2 or 3 regional lymph nodes or intra lymphatic regional metastasis without nodal metastasis

N2a – Clinically occult (microscopic) metastasis

N2b – Clinically apparent (macroscopic) metastasis

N2c – Satellite or in transit metastasis without nodal metastasis

N3 – Metastasis in 4 or more regional nodes, matted metastatic nodes, in-transit metastasis or satellites with metastasis in regional node /nodes.

**Distant Metastasis (M)**

Mx – Distant metastasis cannot be assessed

Mo – No distant metastasis

M1 – Distant metastasis

M1a – Metastasis to skin sub cutaneous tissue or distant lymph nodes

M1b – Metastasis to lungs

M1c – Metastasis to all other visceral sites or distant metastasis at any site associated with elevated LDH

**American Joint Committee on Cancer Melanoma stage classification**

| Pathological stage | Grouping |
|---|---|
| Stage 0 | Tis No Mo |
| Stage I A | T1a No Mo |
| Stage IB | T1b-2a No Mo |
| Stage II A | T2b – 3a No Mo |
| Stage II B | T3b – 4a No Mo |
| Stage II C | T4b No Mo |
| Stage III A | T1 4a N1a Mo |
| | T1 4a N2c Mo |
| Stage III B | T1 4b N1a Mo |
| | T14b N2a Mo |
| | T1 4a N1b Mo |
| | T14a N2b Mo |
| | T1 4a/b N2c Mo |
| Stage IIIC | T14b N1b Mo |
| | T14b N2b Mo |
| | Any T N3 Mo |
| Stage IV | Any T Any N M1 |

**PROGNOSTIC INDICATORS:**

**Good prognosis:**

- Women.
- A large infiltrative infiltrate.
- Nodular, superficial spreading, Lentigo maligna.

**Bad prognosis:** Thickness of tumor > 3mm.Regional lymph node metastasis.

**Poor prognosis:** Lesions over the trunk, head and neck, palmo – plantar, subungual areas and **BANS** (superior aspect of back and posterior aspect of arm, neck and scalp) area.

Presence of ulcers and old age.

**Grave prognosis:** Distant metastasis

**DERMAL MALIGNANCIES:**

**MERKEL CELL CARCINOMA (MCC):**

It is a rare aggressive tumor arising from the cutaneous Merkle cell – neuro endocrine cell. More common in female. PUVA therapy is the high risk for the development of MCC. Immuno suppression, HIV infection, double stranded DNA viruses, polyoma viruses are the other pathogenic factors. Common sites are head, face (38%), extremities and trunk. **Clinically** the lesions are rapidly growing, firm, flesh colored / red violaceous, dome shaped papule / plaque. Regional lymph node and distant metastasis is more common.

**Histological features:**

Resemble small lymphocytes or poorly differentiated metastatic deposits. The cells are argyrophillic with scanty cytoplasm. The nuclei

are round / oval with 2-3 nucleoli. Intermediate, small cell and trabecular are the sub types.

**Treatment:**

Excision with prophylactic lymph node dissection followed by RT. Tumor responds well to RT.

**EPITHELIAL MALIGNANCIES:**

These are the rare skin appendage tumors arising from the eccrine sweat glands, the hair follicles, the sebaceous glands and the apocrine glands.

**CLASSICAL SWEAT GLAND CARCINOMA:**

The tumor arises from eccrine or apocrine sweat glands. Painful reddish nodules of scalp and face are seen. Treatment is wide excision with regional lymph node block dissection.

**MICROCYSTIC ADNEXAL CARCINOMA / SCLEROSING SWEAT DUCT CARCINOMA:**

It is a slow growing tumor. Appears as an indurated plaque. Seen over the central area of the face**. Cytologically** cords of atypical basal keratinocytes with ductal differentiation in a sclerotic stroma are seen. **Treatment** is microscopic surgical excision can be done because of perineural invasion.

**BASAL CELL CARCINOMA OF ECCRINE GLANDS ( ECCRINE EPITHELIOMA):** Seen over the scalp. **Treatment:** Wide local excision.

**MUCINOUS ECCRINE CARCINOMA:**

It arises from head and neck area. Mostly from periorbital region.

**Histopathology :** Central pale cells are surrounded by dark staining cell in a palisading manner. They are separated by broad fibrous septa. **Treatment:** Wide local excision.

**ADENOID CYSTIC CARCINOMA:**

It may be metastatic tumor of salivary gland. Appear as painful nodules over the head and neck. Basophilic cells with a distinct adenoid / cribriform pattern is seen.

**Treatment:** Wide local excision.

**KAPOSI'S SCARCOMA (KS):**

The tumor is seen in the immunosuppressive and AIDS patients. They arise spontaneously primarily over extremities and also anywhere on the skin and viscera. They present as rubbery bluish nodules. They are multifocal lesions rather than metastatic. Early lesions may resemble hemangiomas and the older will be like sarcomas. The lesions are locally

aggressive with periods of remission. The nodal spread is very rapid and also to the GI, respiratory tract which carries poor prognosis.

**Nodular type:** It is a least lethal type. Occurs on the lower extremities mainly over legs and feet as bluish red raised nodules. Odema and pigmentation is seen.

**Florid type :** Ulcerative.

**Infiltrating type:** Infiltrates deeply under lying structures.

**Histopathology:**

Less malignant form reveals irregular vascular sinuses with intervening stroma that contains macrophages with haemosiderin. The endothelial cells the lining vascular sinuses may infiltrate into adjacent collagen bundles. The cells are with little mitosis and anaplasia. Potentially malignant form has spindle cells with formation of abnormal vascular slits.

**Treatment:**

Both radiotherapy and chemotherapy (intra lesional / intra venous vinblastin) are effective in control of disease. Immunomodulators are useful. Monoclonal antibodies are useful in AIDS patients.

**ANGIOSARCOMA:**

The tumor arises spontaneously. Scalp, face and neck are the commonest sites. They appear as a bruise which spontaneously bleeds or enlarges without any trauma. They also may arise from the prior radiotherapy areas or in the setting of chronic lymphadema of the arm, usually after the mastectomy (Stewart-Treves Syndrome).Anaplastic endothelial cells surrounding vascular channels are seen. Total excision of the early lesion occasionally cures the condition. Prognosis is usually poor. Only less than 20% will have 5- year survival. Chemotherapy and radiotherapy are used for palliative treatment.

**DERMATOFIBROSARCOMA PROTUBERANS:**

This is the soft tissue sarcoma arises from the fibroblasts, commonly occurs in $2^{nd}$ –$5^{th}$ decade males. Trunk (50-60%), proximal extremities (20-30%), head and neck (10-15%) are the common locations. This is a slow growing and locally invasive tumor. The lesion may appear as single or multiple nodules, pink in colour. They often ulcerate and infected. With enlargement it becomes painful.

Atypical spindle cells, located around a core of collagen tissue.

**Treatment:**

Wide local excision is the treatment of choice. Recurrence and mortality due to metastasis is high. Three dimensional excisions with 2 to

3 cm margin are advocated. Because of the radio sensitivity, surgery combined with radiotherapy provides 95% of 10 year survival. Chemotherapy with Imatinib also useful.

**FIBROSARCOMA:**

These are the hard, irregular masses found in the subcutaneous fat. Markedly anaplastic fibro blasts with disorganized growth. Treatment is wide local excision. 5 year survival is about 60%. Recurrence is high due to incomplete excision.

**LIPOSARCOMA:** Usually arises in the deep muscle planes, rarely from sub cutaneous tissues. Common site is thigh. Treatment is wide local excision. Radiotherapy for metastatic disease.

**PRIMARY CUTANEOUS MALIGNANT LYMPHOMA:**

- Mycosis fungoides
- Seszary syndrome
- Primary cutaneous Hodgkin's lymphoma, B- cell lymphoma
- Worringer – kollop disease.

**MYCOSIS FUNGOIDES:**

This condition is charecterised by primary infiltration of the skin by malignant lymphocytes followed by systemic involvement. Commonly seen in $4^{th}$ -$6^{th}$ decade.

Presents with long standing dermatitis, exfoliative erythroderma or a popular rash which latter progress into plaque and tumor formation.

**SEZARY SYNDROME:**

It appears as an erythroderma with intense erythematous colour. Thickening of face, neck and palms are the associated features. Abnormal mononuclear cells are seen in peripheral smear. These are large cells with dense reniform nucleus. Diagnosed by histopathology and DNA flow cytometry. Radiotherapy is the treatment of choice for localized, B cell lymphomas. Chemotherapy and radiotherapy is useful for other lesions. Electron beam therapy is used for mycosis fungoides.

**METASTATIC MALIGNANT SKIN TUMORS:**

These are the tumors due to the deposition of the malignant cells from various sites via blood or lymphatic circulation. More common primary sites are breast, stomach, lung , large intestine, uterus, ovary, kidney, prostate, liver and bone. Hypernephroma accounts for about 9% of skin metastasis.

# DIAGNOSIS

**Diagnostic tools for skin malignancies:**

1) History and clinical examination
2) Biopsy and histopathological examination
3) Chest X ray, Ultrasound and CT scan - for metastatic work up.

**Types of biopsy:**

1) Aspiration needle biopsy
2) Wedge biopsy
3) Excisional biopsy (done for tumor size < 1.5 cm diameter)
4) Incisional biopsy
5) Electro coagulation and shave biopsy
6) Frozen section

**Aspiration needle biopsy:** Depends upon the skill of the pathologist. Fear of the tumor implantation along the needle tract is the disadvantage.

**Frozen section:** This procedure is not only useful for intra operative diagnosis, but also to provide adequate tumor clearance.

# DIFFERENTIAL DIAGNOSIS

So many conditions that can mimic skin cancers, they should be differentiated by clinical and histopatholical means carefully.

**Basal Cell Carcinoma (BCC):**

SCC, Dermal naevus, scar, Seborrhoeic keratosis, nodular, superficial spreading and lentigo melanoma, adnexal tumors of the skin, adenoid cystic carcinoma etc

**Squamous Cell Carcinoma (SCC):**

| | | |
|---|---|---|
| Keratoacanthoma | - | slow growing with dome shape. |
| Basal cell carcinoma | - | No lymph node enlargement, no induration at the base. Edges of the ulcer is raised and beaded. |
| Warty horns | - | Usually multiple and not indurated. |

**Malignant Melanoma (MM):**

| | | |
|---|---|---|
| Melanocytic naevus | - | less variegated |
| Pigmented BCC | - | Rolled out and beaded edge |
| Histiocytoma (Sclerosing angioma) | - | It is firm and rubbery. Yellowish brown in colour Thrombosed vascular. |
| Malformation | - | Pre existing lesion will be there. |
| Pigmented senile wart | - | It is a scaly lesion. |

Sub ungual hematoma and Pyogenic granuloma.

# TREATMENT

## TREATMENT OF SKIN CANCERS

**Goals of the treatment:**

1) To cure the disease.
2) To preserve the cosmesis and function.

## TREATMENT MODALITIES:

1) Surgery
2) Radiotherapy
3) Curettage and electro desiccation
4) Cryotherapy
5) Chemosurgery
6) Laser
7) Immunotherapy
8) Photodynamic therapy
9) Topical and oral agents
10) Recombinant gene products

In spite of all treatment modalities mentioned some tumors are difficult to treat due to their anatomical location, histological type, sub clinical extension and recurrence.

## SURGERY: (WIDE LOCAL EXCISION)

Surgery is the best treatment for all operable skin malignancies to provide cure from the disease, good cosmetic and functional restoration. Excision is performed by eliptical incision which helps for the primary

closure of the wound with good cosmetic results. Surgical margins vary according to the type of tumor.

**Basal cell carcinoma:** 0.5 – 1.0 cm margins for all types is adequate.

**Squamous cell carcinoma:** 1cm margins are mandatory, may be combined with lymph node dissection if necessary.

**Melanoma**: Lesions with ***1mm thick*** 1cm margin, for ***2-4mm*** thickness 2cm margin and ***more than 4mm thickness*** 3cm margins are recommended. This should be combined with ***sentinel LN biopsy*** (1-4 mm thickness with occult LN), ***elective / prophylactic LN dissection*** (1-4 mm thickness). LN dissection can be ilio-inguinal, axillary dissection (nodes medial to the pectoralis minor also removed), ***superficial parotidectomy with radical neck dissection*** – for face, anterior scalp and ear lesions to be done.

***Sub ungual malignant melanoma-*** amputation at distal IP joint / ray amputation done for finger and thumb primary.

**SURGERIES FOR DISTANT METASTATIC DISEASE:**

- For local recurrence (lesions with in 5 cm of) – wide excision with 3-5 cm margin.
- For in transit nodules – complete excision with CT.
- For bulky and diffuse recurrence – partial amputation.

- For solitary lung metastasis – chemotherapy and surgical removal. Pathological fractures – external / internal fixation with CT/ RT.
- GIT metastasis – bleeding, perforation, intussusceptions - surgery. Unilateral adrenal metastasis–adrenelectomy. Solitary brain metastasis–surgical extripation followed by whole brain irradiation and CT.

**MOH'S MICROSCOPIC SURGERY:**

Advocated for SCC and BCC. The roll in MM is controversial. Serial excision in small increments along with immediate microscopic evaluation which ensures the complete tumor removal in aesthetically valuable tissues (eyelid, nose, cheek).The procedure can be performed under local anesthesia. The removal of normal tissue also very minimal.

The length of the procedure is the main drawback. Needs multiple attempts, several procedures for several days for complete excision. Cost, skill of the person also to be considered.

**Indications in BCC**: Tumor location (mask area of face, scalp, anatomical fusion planes, periorbital/eyelid), >2cm in size, Morpheaform lesion, recurrent tumor, incompletely removed tumor, lesion on prior radiated site, post transplant immunosuppression, to have normal tissue

for function and cosmesis, to achieve higher cure, cosmesis, and function.

**Indications in SCC:** Infiltrative SCC, poorly defined margins, tumor site (lips, ear,nailbed,nasal tips, eyelid and genitalia), irradiation site, involvement of bone, nerve and muscle, recurrenent large lesion, verrucus carcinoma, tumor from chronic scaring condition.

**Other conditions:** Fibrohistiocytic tumors, leiomyosarcoma, liposarcoma angiosarcoma, Merkel cell carcinoma are very useful.

**CRYO SURGERY:** The destruction of the lesion by using cold temperature. Liquid nitrogen is used (-195.5degree C). Procedure is done without anesthesia. Less than 2cm lesions can be treated, mainly over eyelid, ear, chest, back and tip of the nose. Most of the lesions can be excised in one sitting. The entire lesion can be examined by the pathologist. Deep infiltrative lesion can be removed completely along with the invasive cartilage or bone. Recurrent lesions following RT, morphea bcc, BCC lesions from the scar can be treated successfully.

**CURRETAGE AND ELECTRO DESSICATION:**

Used to treat BCC, superficial SCC, precancerous conditions and benign lesions. Technique is based on the consistency difference of tumor tissue and normal stroma. Meibomian curette is used to eneucleate the

tumor bulk by curetting followed which stroma and surrounding dermis are charred using diathermy / cautery for 1mm depth. Deep infiltrative lesion and morphea forms cannot be treated.

**RADIOTHERAPY (RT):**

Dosage 4000 – 5000 c Gy, in 10 -12 divided doses, for about 2 -3 weeks.

Tumors in curved areas ***radium*** or ***radioactive cobalt*** surface mould and for the tumors in mobile areas ***radium needles*** or ***iridium wires*** can be used.

***Electron therapy*** can be used to treat the lesions of nasal cartilage.

**Indications and advantages:**

Tumors (**BCC, SCC** of head and neck, poorly differentiated) invading the eyelids, tear ducts and nasal tip without causing destruction, where the reconstruction is difficult can be treated with RT. Tumors with ill defined margins, to treat the wide margin of surrounding tissues.

Elderly patients with advanced lesions can be treated with less trauma than surgery. No need of hospital stay.

Radiotherapy in ***Melanoma-***used to treat ***Lentigo maligna (relatively radio sensitive)*** in elderly infirm patients.

***Palliative treatment*** for metastatic disease (brain, bone), also used for pain relief, due to secondary bony deposits and pathological fracture.

**Contraindications:** Age group less than 40 yrs, previous RT failures, radio resistant tumors (Morpheaform BCC).

**Dis-advantages :** Scarring, radiation dermatitis, ulceration and malignant degeneration are results of improper RT, radio necrosis due to conventional RT, hair loss and baldness. Difficult to execute in areas like ear. Requirement of expensive facilities and qualified personals. Long period of treatment (4 -6 weeks).

**Interferon α:** Used intra lesionally in multiple lesions of old aged frail patients.

**IMMUNOTHERAPY:** Used only in very few centers for selective patients. Principle is by making an individual sensitive to a particular antigen which produces delayed hypersensitivity reaction on topical application. Used for the large tumor areas not able to treat by surgery and other modes. Can be used as prophylactically. Agents used are- DNCB (Dinitro chlorobenzene), SK (Streptokinase), TEIB (Triethylene immuno benzo quinone) and BCG. % 5 FU cream. Smaller lesions can be treated earlier with cure rate of about 60 – 90% for BCC. Reduction in new tumor formation also achieved.

## HYPERTHERMIC REGIONAL PERFUSION

## (Isolated limbperfusion):

**Indications:** Local recurrence, in transit lesions, tumor thickness more than 1.75mm without nodal metastasis and Stage II and III disease. ***Melphalan*** is the drug used for perfusion at more than ***40- 41degree C.***

The high local concentration of drug with minimal systemic toxicity is achieved. Tumor necrosis factor also used for perfusion. Efficacy is improved by in-circuit and heat changer**.** Myelosupression, vascular injury, limb edema and infection are the complications.

## CHEMOTHERAPY (CT):

No role as adjuvant CT after definitive surgery but for disseminated **(Stage IV) disease of malignant melanoma.** Dacrbazine (DTIC), Vindesine are most commonly used drugs. Combination regimens are as follows,

**VBM** (Vindesine, Bleomycin, Methotrexate),

**BOLD** (Bleomycin, Vincristine, Lomustine (ccnu) and Dacrbazine)

**BELD** (Bleomycin, Vindesine, CCNU and DTIC)

## CHEMOIMMUNOTHERAPY:

Used in stage IV disease of MM.Combination of INF α and interleukin 2 with Dartmouth regimen (DBDT) and cisplatin based bio CT.

***Dartmouth regimen***-DTIC (Dacrbazine), BCNU (Carmustine), DDP (Cisplatin) and Tamoxifen.

**INTERLEUKINS:**

IL – 2 alone is used to treat metastatic melanoma. In combination with lymphokine –activated killer cells more effective.

**MONOCLONAL ANTIBODIES (mAbs):**

They recognize melanoma associated antigens, like peptidoglycans, high molecular weight melanoma-associated antigens, glycoproteins, transferring receptor – related antigens and gangliosides. mAbs are used as direct therapeutic agent, along with radioactive isotope used for diagnosis of metastasis. Unconjucated murine mAbs having clinical response against GD2 and GD3 gangliosides.

**MELANOMA VACCINES:**

They stimulate immune response against melanoma associated antigens. Treating melanoma cells with New castle, vaccina viruses using mechanical lysates and immunologic adjuvants like BCG / DETOX. Melanoma – deprived peptide antigen vaccines are MART-1, gp -100 and the gene therapy, they genetically alter melanoma cells to secrete cytokines of interest or increase immunogenicity. Dendritic cell vaccines stimulate host anti tumor activity.

**RECURRENCE :**

This is the major problem which is due to inadequate clearance, which fairly depends on the site of the tumor, its type and the treatment done already.

**Recurrence after surgery:**

It is due to inadequate marginal clearance. The lesion appear as a nodule which develops from the surgical scar. It gradually increases in size and reproduces the lesion similar to that of its initial lesion.

**Recurrence after Skin graft or flap cover:**

In this, the lesion appears as nodule beneath the graft. It is very difficult to recognize, when the lesion is beneath the flap due to the thickness. The graft or flap over the lesion will be mobile for some period of time. Failure of normal post operative sequences will be noted in such recurrences.

**Recurrence after RT:**

Depends upon the RT dosage administered, the state of the skin before the treatment, the characteristics of the original lesion. Mainly seen in excision done on already irradiated skin.

**BASAL CELL CARCINOMA:**

The recurrence following secondary treatment of BCC after prior surgery or RT is higher than the recurrence after the primary surgical treatment. The treatment of recurrent lesions after prior RT is, to include possible all adjacent radiographic tissues. Because of the potency to change malignant and delayed wound healing of radio atrophic tissues.

**SQUAMOUS CELL CARCINOMA**:

Individual tumors differ from their activity, growth rate etc. The lesion may erupt and rapidly reassume the original lesion or may be slow growing in nature. Recurrence after RT appears as radio necrotic ulcer. Biopsy from the margin and base confirms.

# *Observation and Results*

# OBSERVATION AND RESULTS

Our study was conducted between September 2011 – November 2012. Total number of skin malignancies diagnosed was 45 cases. Males 24 and female patients are 21 in number. Out of them 37 patients are from in and around Coimbatore, 5 from Tirupur,1 from Goodalur, 1 from Palani and 1 from Dharapuram district.

Age of the patients varied from 36 – 85 years. Mostly between 50 – 70 years. There was no significant family history of skin cancers.

Total number of newly detected malignancies in CMCH during the study period 990(M) +1030 (F) = 2020

Skin malignancies newly diagnosed (n): 24(M) +21(F) = 45

**Contributes 2.2 % of overall malignancies in CMCH.**

**TABLE : 1**

**INCIDENCE IN OUR STUDY**

| **Total cases** | **45** |
|---|---|
| Squamous cell carcinoma | 31 (69%) |
| Basal cell carcinoma | 10 (22%) |
| Malignant melanoma | 04 (9%) |
| Others | Nil |

**CHART : 1**

**INCIDENCE IN OUR STUDY**

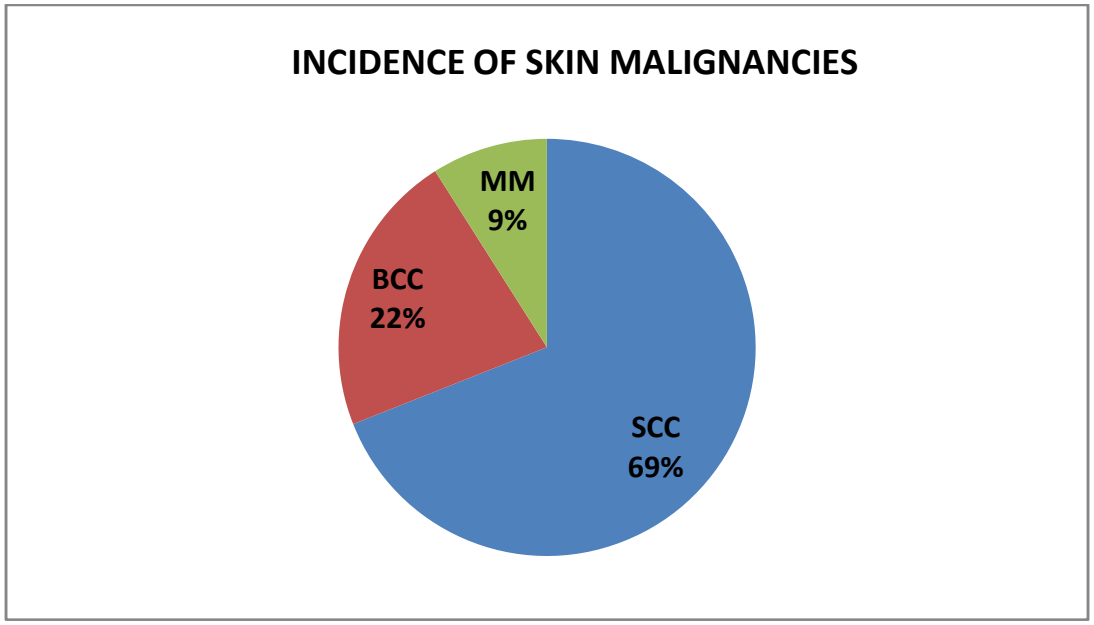


**TABLE : 2**

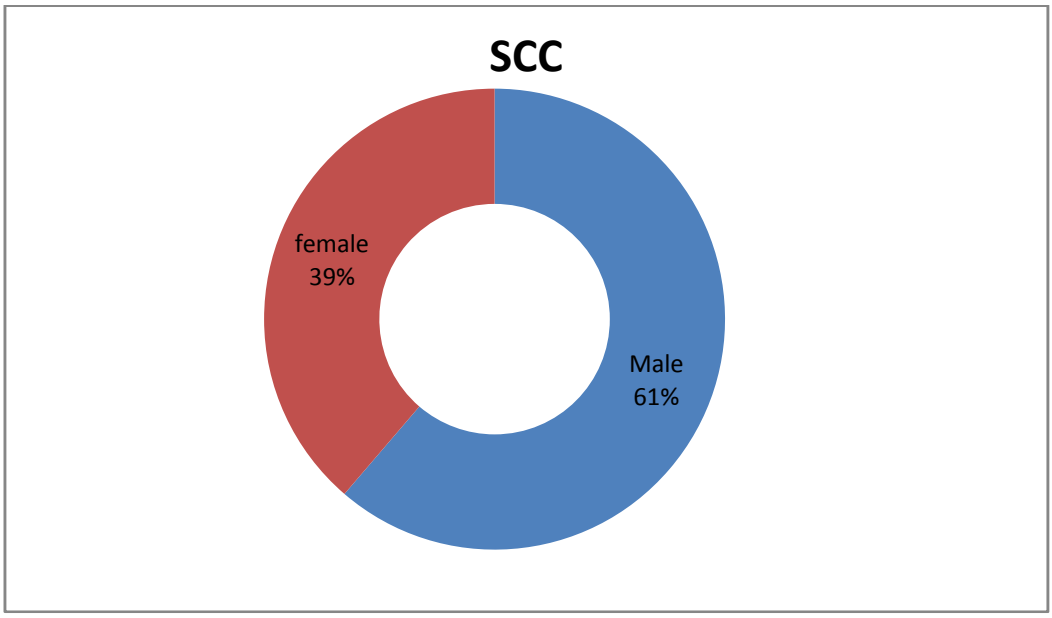
**SQUAMOUS CELL CARCINOMA**

**(Sex distribution)**

| Sex | Total number of cases 31 |
|---|---|
| Male | 19 (61%) |
| Female | 12 (39%) |

**CHART : 2**

**SQUAMOUS CELL CARCINOMA**

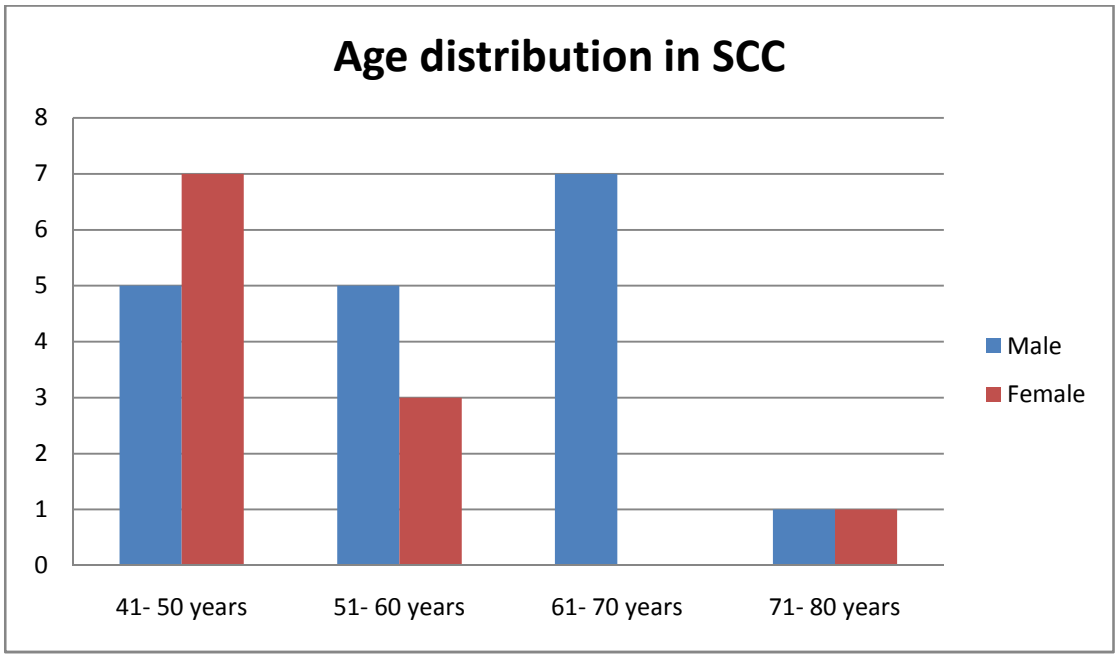


## TABLE : 3

## AGE DISTRIBUTION IN SCC

| Age in years | Male | Female |
|---|---|---|
| 30 – 40 | - | 1 |
| 41 – 50 | 5 | 7 |
| 51 – 60 | 5 | 3 |
| 61 -70 | 7 | - |
| 71 – 80 | 1 | 1 |
| 81 -90 | 1 | - |

## CHART : 3




**Common age group is 40 – 70 years.**

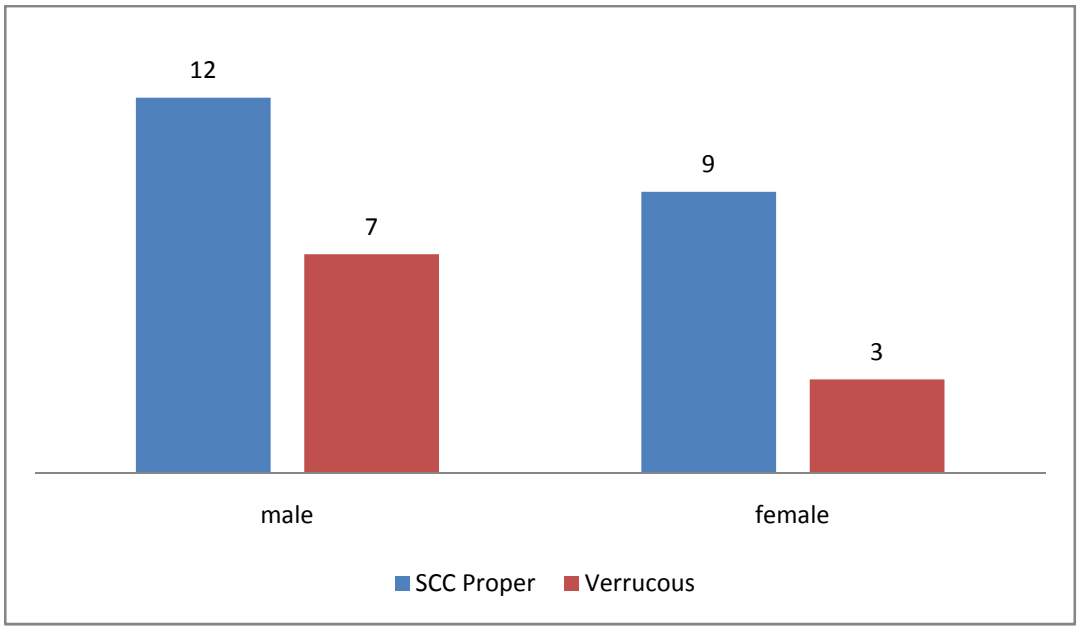
## TABLE : 4

## HISTOLOGICAL TYPE IN SCC

| Type | Male | Female |
|---|---|---|
| SCC Proper | 12 | 9 |
| Verrucous | 7 | 3 |

## CHART : 4

## HISTOLOGICAL TYPE IN SCC



## TABLE : 5

## HISTOLOGICAL GRADE IN SCC

| SCC Grade | No. of Cases | Percentage |
|---|---|---|
| Well Differentiated | 14 | 67 |
| Moderately Differentiate | 7 | 33 |

## CHART : 5

## HISTOLOGICAL GRADE IN SCC

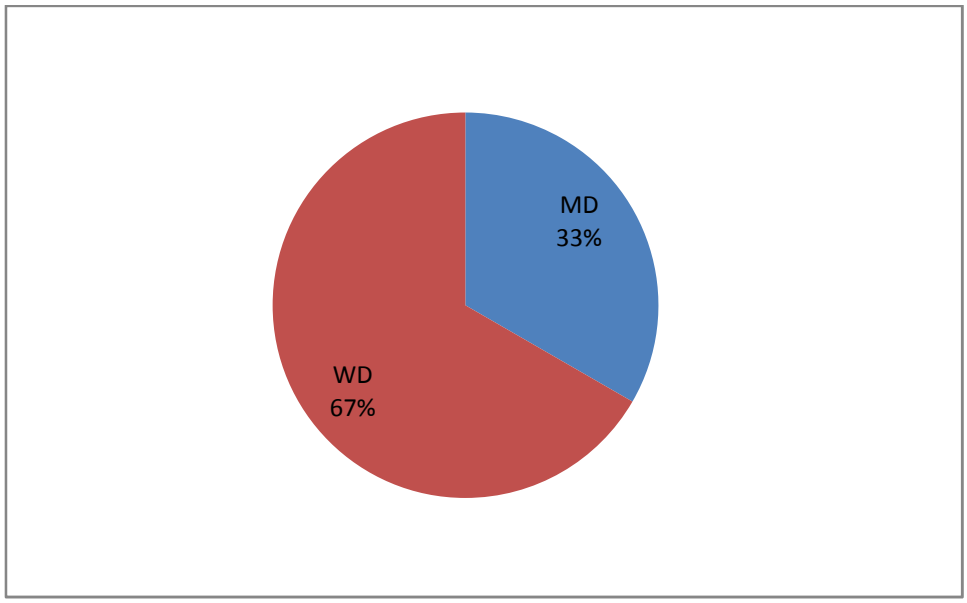


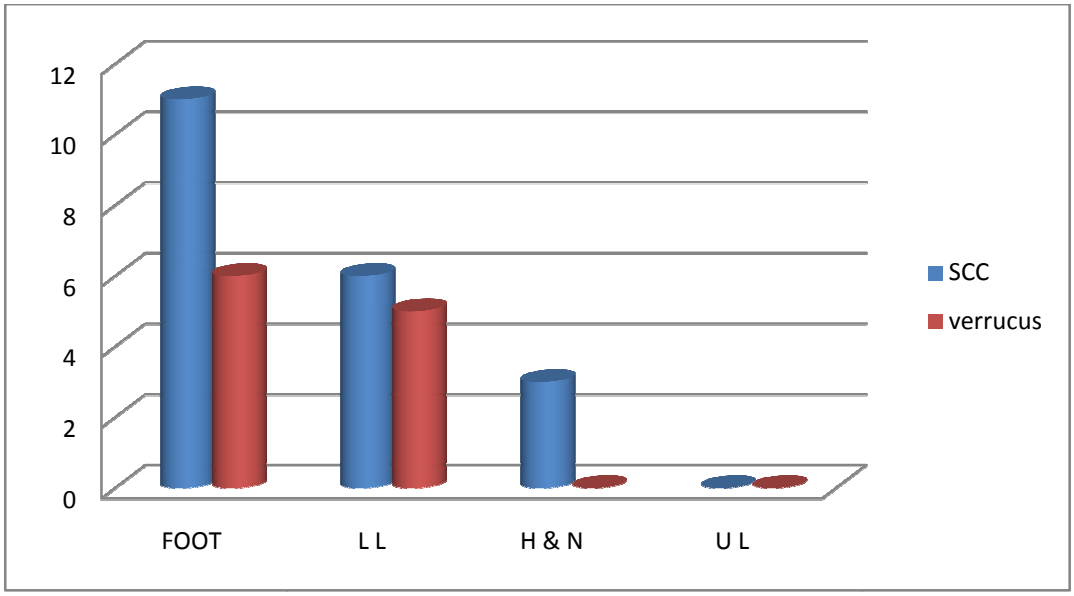
**TABLE : 6**

**ANATOMICAL DISTRIBUTION OF SCC**

| Site | No. of Cases | Percentage |
|---|---|---|
| Foot | 17 | 55% |
| Lower limb | 11 | 35% |
| Head and neck | 3 | 10% |
| Upper limb | - | - |

**CHART : 6**

**ANATOMICAL DISTRIBUTION OF SCC**




**TYPE OF THE LESION:**

Most of the lesions were ulcerative / ulceroproliferative type.

Two lesions were aroused from the burns scar.

Non healing ulcers after corn shave - 03

- 4 patients had significant palpable lymphadenopathy were subjected to fnac.1 patient had metastatic deposit, others had reactive adenitis.
- 3patients were treated for leprosy in the past now diagnosed with verrucus carcinoma.
    - All the lesions were > 3cms in size
    - One Patient had deformed and ankylosis of the ankle.

X-rays were taken for all lower limb lesions were normal. CT scan for the reliable patients done. There was no abnormality deducted.

Treatment modalities executed in SCC patients:

**Table – 6a**

| SL NO | SURGERIES PERFORMED | NO OF CASES |
|---|---|---|
| 1 | Wide local excision with primary closure | 4 |
| 2 | Wide local excision with SSG | 20 |
| 3 | Wide local excision with flap cover | 2 |
| 4 | Below knee amputation | 3 |

- 4 patients had lymph node dissection.
- Two patients were drop out.

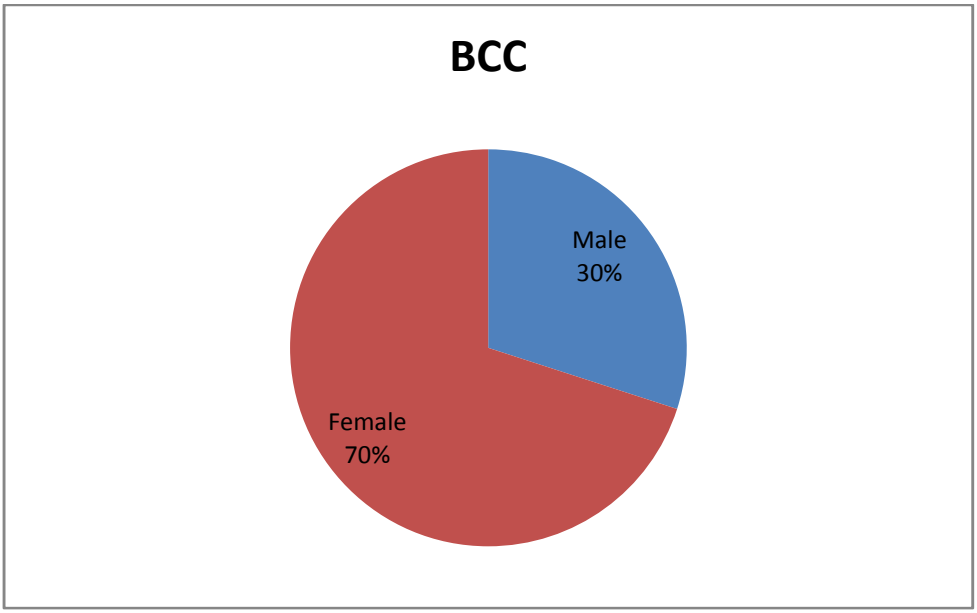
## Table -7

### BASAL CELL CARCINOMA

| Sl.No | SEX | No of Cases Diagnosed |
|---|---|---|
| 1 | Male | 3 (30%) |
| 2 | Female | 7 (70%) |

## Chart - 7

## BASAL CELL CARCINOMA



## Table – 8

## AGE DISTRIBUTION IN BCC

| AGE | MALE | FEMALE |
|---|---|---|
| 30- 40 years | | 1 |
| 41- 50 years | | 1 |
| 51- 60 years | 1 | 1 |
| 61- 70 years | 2 | 2 |
| 71- 80 years | | 2 |

## Chart - 8

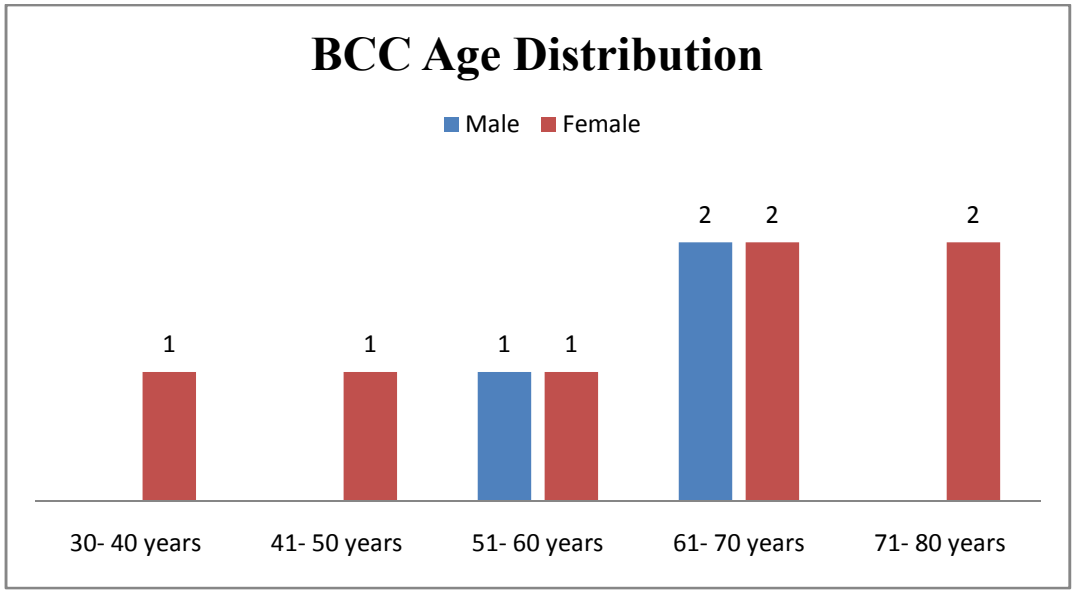
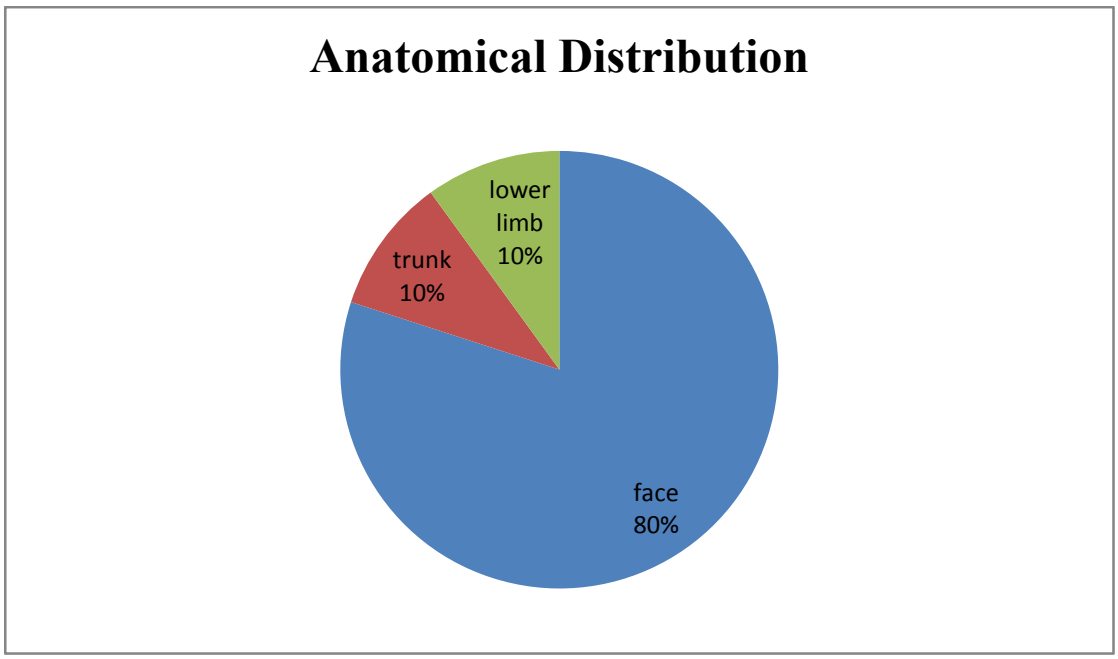


**Table – 9**

**ANATOMICAL DISTRIBUTION OF BCC**

| SL.NO | SITE | No. OF CASES |
|---|---|---|
| 1 | Face | 8 (80%) |
| 2 | Lower Limb | 1 (10%) |
| 3 | Trunk | 1 (10%) |

**Chart - 9**



- **Presentation:**

2 lesions were ulcerative, 2 pigmented and 4 nodular- all were single lesion. One patient with Xeroderma Pigmentosum presented with multiple ulcerative lesions over face. 1 lesion Pedunculated type. Size of the lesions varies from 1cm -3cm.

**Diagnosis:**

- Clinical & histopathological.
- 7 patients were diagnosed by wedge biopsy and 3 by excision biopsy.
- X-rays taken to rule out bony erosion.

Histological types: Among the cases,

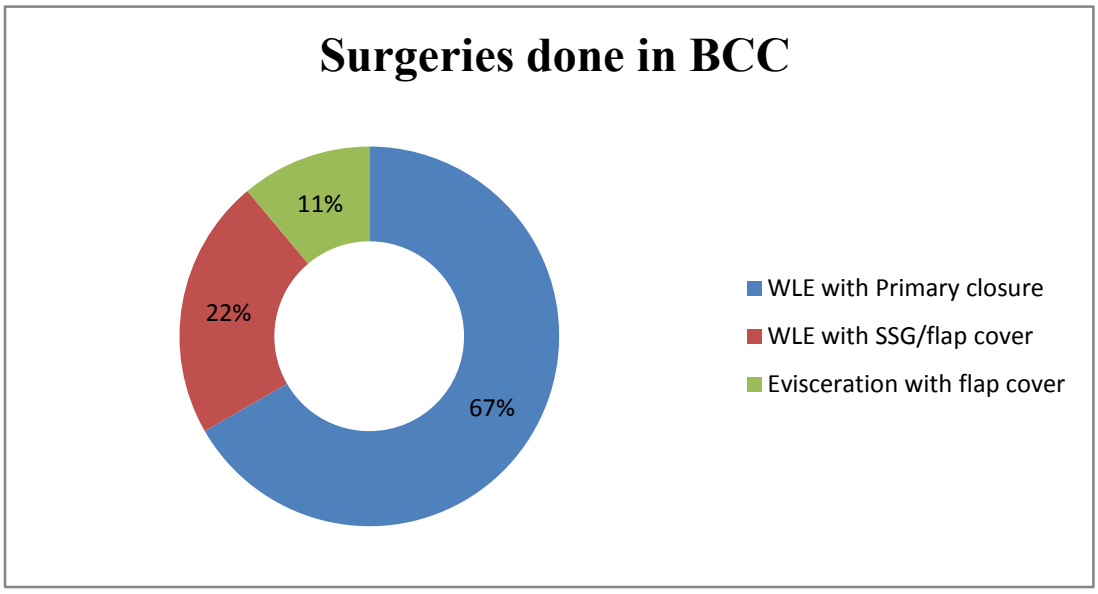
Pigmented BCC- 2 and Basosquamous type- 1.

**Treatment modalities executed in BCC**

**Table -10**

| Sl No | SURGERY | NO OF CASES |
|---|---|---|
| 1 | Wide local excision with primary closure | 6 |
| 2 | Wide local excision with SSG/ flap cover | 2 |
| 3 | Evisceration and flap cover | 1 |

**Chart - 10**




- All patients lesions were excised with adequate margins.
- 1 patient underwent evisceration due to infiltration into orbit.
- Patient with XP with multiple bcc, 2 off 3 lesions margins were positive. One lesion on forehead with features of BCC & SCC. Advised 5FU topical application.
- 1 patient with 1 margin positive- on regular follow up at present.
- All other patients were doing well.
- 1 patient was failed to turn up for treatment.

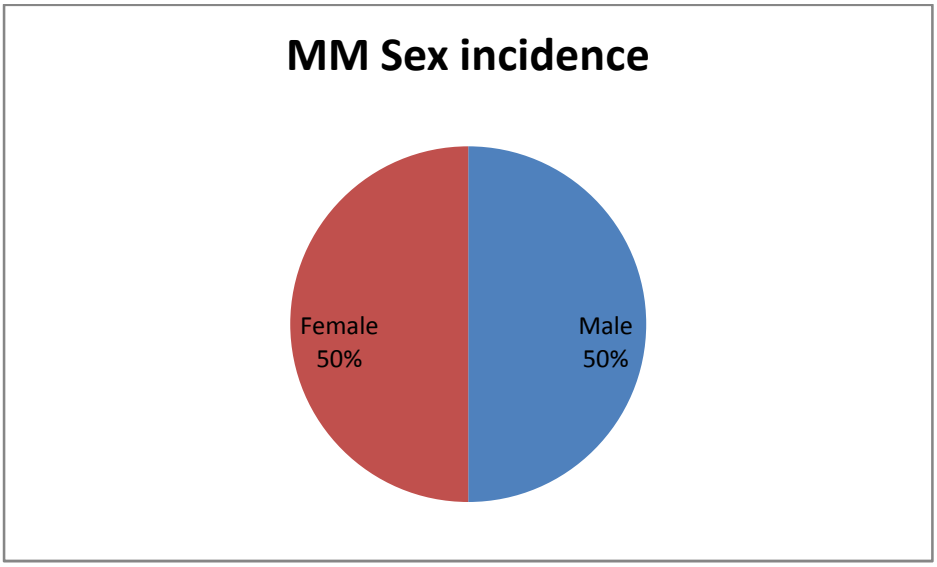
# Malignant Melanoma (MM)

**Four patients had diagnosed. 2 male, 2 female.**

**Table - 11**

| Age in years | Male | Female |
|---|---|---|
| 30- 40 | 2 | 0 |
| 41 – 50 | 0 | 1 |
| 51- 60 | 0 | 0 |
| 61 – 70 | 0 | 0 |
| 71-80 | 0 | 1 |

**Chart - 11**




- All the four patients had lesion on the foot. One male patient had 1x1cm pigmented ulcerative lesion on the plantar aspect of the left foot with inguinal node.
- Another one had ulcerative 2x2cm lesion on left heel.

- One female patient had irregular lesion over right great toe. Initially started from a small mole over the pulp of the toe.
- Another one had lesion over sole of about 3x2 cm. Biopsies taken and the diagnosis confirmed and fnac from the node taken.

**Treatment modalities executed: Table – 11a**

| Procedure | Numbers |
|---|---|
| Wide local excision with ilio inguinal block dissection | 1 |
| Wide local excision with SSG | 1 |
| Disarticulation of the great toe | 1 |

One patient died after the diagnosis due to the age factor and poor general condition. One patient had positive nodal metastasis. Ilio inguinal block dissection done for that patient.Postoperatively patient was treated with Chemotherapy. Two of the other patients are on follow up.

Most of the patients in our study were in low socio economic status. Occupationally manual labours with history of exposure to excessive sun light for prolonged period. 17 male patients had history of using tobacco products in any form (smoking in 14 patients and tobacco chewing in 3 patients). In female 15 of them had the habit of tobacco chewing. 1 patient with genetic disorder (XP) with multiple hyper and hypo pigmented lesions all over the body and extremities.

# *Discussion*

# Discussion

Over all incidence of skin cancer is increasing worldwide. In India, various studies conducted reveals that the incidence of skin cancers in raising trend. The occurrence of skin cancers in India differs from the western countries by the anatomical sites. In western countries in US, Australia the etiological factors are mainly due to the fair skin, red hair phenotype etc. Poor tanning in whites is the important factor that contributes increase in incidence of skin cancers in western countries. In India even though skin cancers are very low, the incidence is increasing in trend. This is because of the various factors like, low socioeconomic status of the people, most of them are manual labours, prolonged exposure to sun light, smoking and use of of tobacco products. Most of the skin cancers occur in the age group of $4^{th}$ to $6^{th}$ decade. Males are more affected than females. Studies shows there is protective effect from skin cancers by NSAIDs.

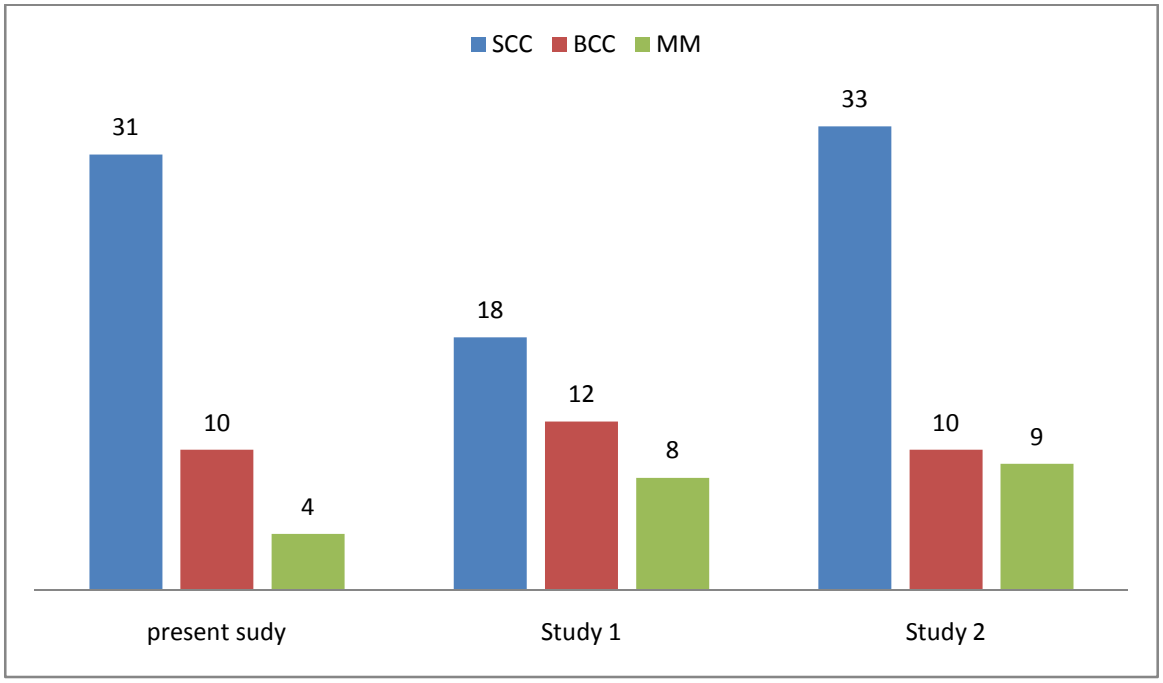
Two studies were conducted in CMCH previously. Both the studies were conducted for 24 months. Our study period (September 2011- November 2012).

**Incidence of skin malignancies:**

**Table - 12**

| Types of malignancy | Present study Total cases 45 | Study I Total cases 40 | Study II Total cases 54 |
|---|---|---|---|
| SCC | 31 (69%) | 18 (45%) | 33 (61%) |
| BCC | 10 (22%) | 12(30%) | 10 (19%) |
| MM | 04 (09%) | 08 (20 %) | 09 (17%) |
| Others | 0 | 02 (05%) | 02 (03%) |

**Chart - 12**



**Sex Incidence:**

**Table - 13**

| Study | Male | Female |
|---|---|---|
| Present study | 24 (53%) | 21 (47%) |
| 1993 | 28 (70%) | 12 (30%) |
| 2002 | 38 (70%) | 16 (30%) |

**Chart - 13**

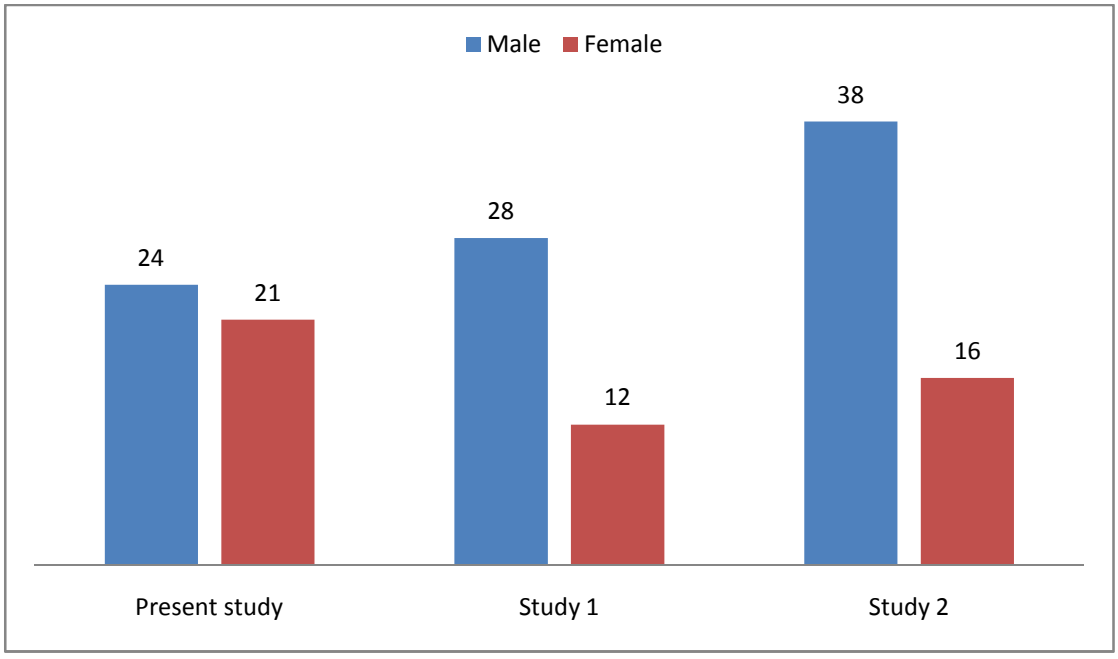


**Table – 13a**

| Type | Present study | | Study I | | Study II | |
|---|---|---|---|---|---|---|
| | **M** | **F** | **M** | **F** | **M** | **F** |
| SCC | 19 | 12 (1.6:1) | 13 | 05 (2.6:1) | 27 | 06 (4.5:1) |
| BCC | 03 | 07 (1:2.5) | 08 | 04 (2:1) | 06 | 04 ( 2.5:1) |
| MM | 02 | 02 (1:1) | 06 | 02 (3:1) | 05 | 04 (1.25:1) |
| Others | 00 | 00 | 01 | 01 | 00 | 02 |

On comparisons with the previous studies SCC, BCC having their incidence increasing in female population. On the other end melanoma cancer incidence is getting down.

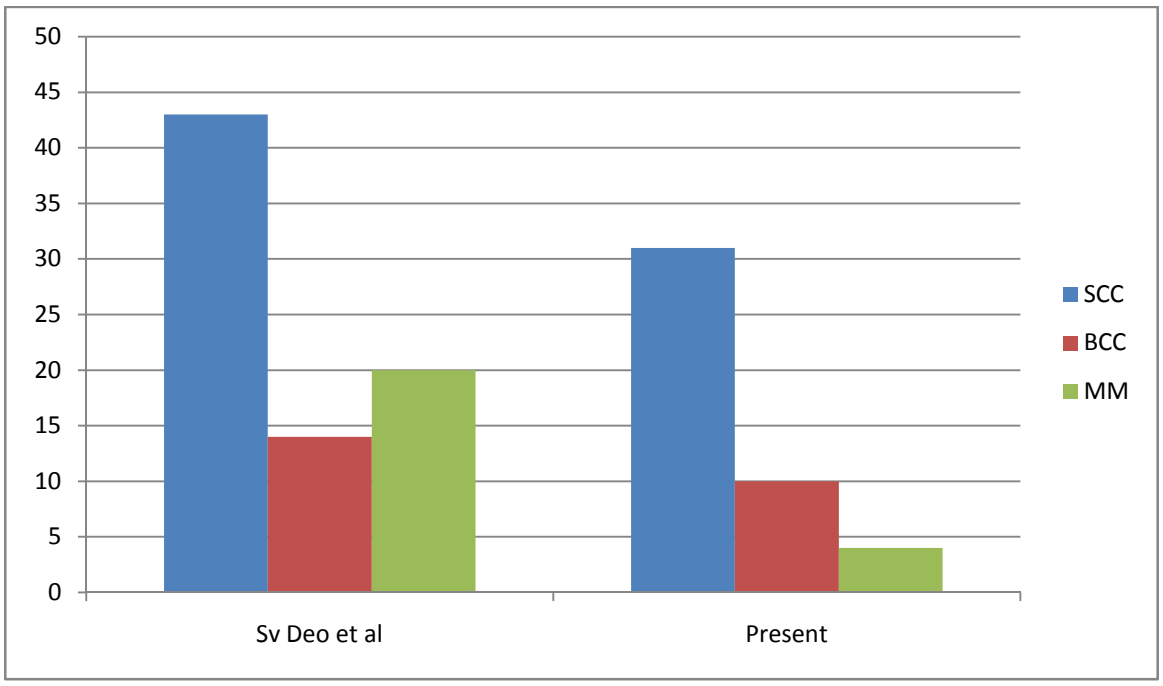
**Incidence of skin cancers in India:**

**Analysis report of Sv Deo et al, department of surgical oncology**

**AIIMS New Delhi.** **Table – 14**

| **Observation** | **Study of Sv Deo et al** | **Present study** |
|---|---|---|
| **Incidence of skin cancers** | **2.4% (77/3154)** | **2.2% (45/2020)** |
| **Incidence of SCC** | **55.8% (43/77)** | **69% (31/45)** |
| **Incidence of BCC** | **18.1% (14/77)** | **22% (10/45)** |
| **Incidence of melanoma** | **26.1% (20/77)** | **09% (04/45)** |

## Chart - 14




In India the incidence of skin cancers varying from 0.5 to 2 per 100000 population. Mean age is 51.8. Report incidence of skin cancers in India is < 1.1 of all cancers. Various studies shows increase in incidence of skin cancers in Indians.

Actual figures of NMSC are not available in most of the region are due to poor reported / not reported in many national cancer registry.

In United States 1.2 million new cases of NMSC are diagnosed / year. About 80,000 melanoma are diagnosed / year. BCC is the most common malignancy in whites. The incidence in US and Australia are 146 and 726 / 100000 population respectively. The annual risk of BCC and SCC in

whites of US is **30%** and 10 % respectively. Majority of NMSC occurs in head and neck region. Incidence of BCC is high in female.

Regil et al confined that incidence of SCC about doubled in both genders in US population, and Athas wf et al. states that incidence of BCC has been increased by 50% in male and 20% in female. Melanoma is the 6$^{th}$ leading cancer in US, more common in men than women. Median age group of diagnosis is 57 years. Franke et al quotes that the incidence of plantar malignant melanoma increased among all other types of melanoma. Due to its aggressiveness and late presentation the mortality is very high.

# *Summary of the Study*

## SUMMARY OF THE STUDY

1) On par with previous studies incidence of skin cancers is increasing. Incidence in our study is 2.2% according to Sv Deo it was 2.4%. Most of them are due to excessive exposure to sun light due their occupation.
2) Among the skin cancers the occurrence of SCC, BCC and Malignant Melanoma in their descending order.
3) Incidence of BCC and SCC is increasing in female population.
4) Because of the low socioeconomic status, poor awareness, older age, painless presentations of SCC the patient's medical attention is very late stage.
5) In BCC, as the lesions appear on the face, the patients seek medical attention at earlier though the lesions are small and painless.
6) SCC, in our series was seen mostly over the lower limb more over on the foot. The reason may be recurrent unnoticed / neglected injuries leading to non healing chronic ulcer, which may turn into malignant.
7) Two of the SCC lesions were found to arise from post burn ulcer.
8) Most of the SCC patients were well treated with WLE with primary closure SSG / flap cover and they walked home disease free. Three patients treated with below knee amputation because of

their very late presentation, severity of the disease and associated deformity. There by the morbidity was reduced.

9) BCC more common site of occurrence is head and neck. The BCC patients were treated successfully by WLE with primary closure / ssg / flap cover. We able to give them cure and cosmetic improvement. One patient due to her late presentation and aggressiveness of the disease underwent evisceration of orbit and flap cover.

10) In melanoma the lesions were seen in foot. Three patients were treated by WLE with SSG, disarticulation and WLE with ilio inguinal lymph node dissection. There by the morbidity and the mortality were reduced.

# *Conclusion*

# Conclusions

1) Skin cancer is becoming more common cancer among the Indians due to their excessive and prolonged exposure to UVR of sun light.
2) It is totally curable once diagnosed and treated at early.
3) The best modality of the diagnosis is by subjecting the lesions for biopsy.
4) By obtaining the proper history, clinical examination and strong suspect on each and every non healing ulcer, changes in the mole one can diagnose skin cancers early.
5) The best modality of treatment in our setup is surgery.

Prevention is better than cure. Avoiding unnecessary exposure to sun light and other chemical carcinogens will prevent the skin cancer. Educating the people, for proper clothing, using sunscreen lotions, ointments and to seek the medical help in early diagnosis. Use of topical antimitotic over vulnerable lesions, in patients with XP and genetic counseling plays a major role.

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# *Annexures*

*Proforma*

# PROFORMA

**Name:** **Age / sex:** **Occupation:** **IP / OP:**

**Address:** **Date of admission:**

**Complaints:** Ulcer / Pain / Swelling / Discharge / Pigmentation / Pruritus – with duration

H /O : Sudden increase- in size of growth / number of moles / size of mole change in colour.

H /O : Fever / Cough / Head ache /Loss of appetite / loss of weight.

H /O : Sun burns / Recurrent injury / Corn shaving / Non healing ulcers / Burns / varicose ulcers contact with chemicals / Pesticides etc.

H /O : Exposure to excess sun light / Irradiation in the past / X rays / UV rays.

H /O : Skin disorders-Lupus vulgaris / psoriasis / Leukoplakia.

H / O : Diabetes / Hypertension /Tuberculosis /Asthma / Ischemic heart disease / Malignancy.

H / O : Surgery / Organ transplantation / Jaundice in the past

H /O : Smoking / Alcohol / tobacco use in any form

**Family h/o:** Skin and other malignancies

**Treatment:** Immunosuppressive drugs/ other topical applications

**General Examination :**

Built /complexion /skin/ hair/ nail/ anemia / jaundice

Lymphadenopathy / Pedal edema etc.

Presence of pre malignant lesions- Leukoplakia, keratosis, Pigmented moles, naevi, burnscar etc.

Vitals- temp / pulse rate /min and BP

L / E : Lesion - Ulcer / swelling /warty lesion etc.

Numbers:

Site :

size: shape:

surface: edges:

floor: mobility :

induration: discharge:

Lymph node (s) examination.

CVS - RS - P/A - CNS - Examination.

**Investigations:**

Wedge / Excisional biopsy. Fnac from nodes.

Basic blood investigations, HIV status , chest X ray and ECG, X rays of local area.

Usg abdomen and CT scan etc.

**Diagnosis**

**Treatment:**

Surgery / medical,

**Outcome**: Functional / cosmesis Prognosis.

# *Master Chart*

# MASTER CHART

| S.No | Name | Age | Sex | IP / OP | Complaints | Duration | Biopsy Report / Diagnosis | Procedure done | outcome | Follow up |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Mr.Murugan | 62 | male | 51412 | Ulcer over right heel | 6 months | Invasive SCC/WD | WLE/SSG | Good | 6 months |
| 2 | Mr.Selvaraj | 47 | male | 53398 | Ulceroproliferative growth right heel | 1 1/2 years | SCC/WD | WLE/SSG/ Inguinal node dissection | Good | 6 months |
| 3 | Mr.Lakshmanan | 68 | male | 57490 | Ulcer right side face below eye | 2 years | Pigmented BCC | WLE/FLAP COVER | 1margin positive | yes |
| 4 | Mr.Thangavelu | 56 | male | 61264 | Ulceroproliferative growth Left forefoot | 10 years | Verrucous carcinoma | WLE/SSG | Good | 1 month |
| 5 | Mr.Rangasamy | 85 | male | 67874 | Ulcer on right foot | 1year | SCC/WD | BK Amputation | Better | 6 months |
| 6 | Mrs.Nanchiammal | 50 | female | 65176 | Ulcer middle 1/3 of left leg | 5 years | SCC/WD | WLE/SSG | I margin positive | Rourrence |
| 7 | Ms.Vakithabanu | 30 | female | 70590 | Ulcers right side forehead,face,lip | 2months | BCC/Basosquamous | WLE/SSG/FLAP COVER | Margins positive | Oncology department |
| 8 | Mrs.Thulasi | 65 | female | 475220 | Ulcer left side nose | 1 year | Pigmented BCC | WLE/Primary closure | Good | 1month |
| 9 | Mrs.Meerabegam | 56 | female | 8488 | Ulcer left leg and foot | 6 months | SCC/WD | E/FLAP COVER/ inguinal node dissect | Good | 5 months |
| 10 | Mrs.Manonmani | 48 | female | 20565 | Ulcer right side neck over the burns scar | 3 months | SCC/WD | WLE/SSG | Good | yes |
| 11 | Mr.Chennayah | 67 | male | 8418 | Ulcer left side of chest wall | 2years | BCC | WLE/Primary closure | Good | 2weeks |
| 12 | Mrs.Rangammal | 75 | female | 8422 | Ulcerative growth right heel | 2 1/2 years | Invasive SCC/WD | BK Amputation | Better | On follow up |
| 13 | Mr.Veeramani | 36 | male | 71620 | Ulcer left side with left inguinal node | 3months | Malignant melanoma | WLE / Ilio inguinal block dissection | All nodes Positive | On Chemotherapy |
| 14 | Mr.Nagaraj | 51 | male | 16084 | Ulcer right ankle | 3years | Verrucous carcinoma | WLE/SSG | Good | 3 months |
| 15 | Mr. Rangan | 56 | male | 7699 | Ulceroproliferative growth right heel | 1year | Verrucous carcinoma | WLE/ SSG | Good | 5 months |
| 16 | Mrs.Alamelu | 75 | female | 42645 | Ulcer right side nose | 4years | BCC | WLE/Primary closure | Good | 1month |
| 17 | Mr.Rajendran | 50 | male | 48234 | Ulcerative growth left thigh | 2 years | Verrucous carcinoma | WLE/Primary closure | Good | 3months |
| 18 | Mr.Marudhan | 65 | male | 46791 | Ulcerative growth right heel | 5months | SCC/WD | E/FLAP COVER /Inguinal node dissecti | Good | 2 months |
| 19 | Mr.Mauhali | 50 | male | 51164 | Ulceroproliferative growth right thigh | 20 years | SCC/MD | WLE/Primary closure | Good | 1 month |
| 20 | Mrs.Lakshmi | 50 | female | 49181 | Ulcer right lower leg | 2months | SCC/MD | WLE/SSG | Good | 2 months |
| 21 | Mr.Arumugam | 55 | male | 51448 | Ulcer left foot with deformed foot / ankle | 3 years | Invasive SCC/WD | K Amputation / Inguinal node excisio | Better | On follow up |
| 22 | Mrs.VetriseM | 36 | female | 62101 | Ulcero proliferative swelling in right leg | 2years | Verrucous carcinoma | WLE/FLAP COVER | Good | 2months |
| 23 | Mr.Shankar | 70 | male | 60499 | Ulcer left heel | 6 months | Verrucous carcinoma | WLE/SSG | Good | 4 months |
| 24 | Mrs.Rukmani | 46 | female | 49490 | Ulcer right heel | 5months | Verrucous carcinoma | WLE /SSG | Good | 3 months |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 25 | Mrs.Nanjammal | 65 | female | 26580 | Ulcer right lower eye lid | 1year | BCC | Evisceration / Flap cover | Poor | No |
| 26 | Mrs.Kamatchi | 75 | female | 50318 | Ulcer over left cheek | 4months | BCC | WLE/ Primary closure | Good | 1month |
| 27 | Mrs.Kamalathal | 43 | female | 200078 | Proliferated growth right thigh | 3years | BCC | WLE / Primary closure | Good | 2weeks |
| 28 | Mr.Ravichandran | 60 | male | 70712 | Ulcer right side of face | 7months | BCC | WLE/ Primary closure | Good | 1month |
| 29 | Mrs.Radhamani | 46 | male | 26213 | Pigmented ulcer right great toe | 8months | Malignant Melonoma | Disarticulation | Better | yes |
| 30 | Mr.Ganapathy | 63 | male | 20560 | Chronic ulcerative growth left foot | 5years | Verrucous carcinoma | Left out | NIL | NIL |
| 31 | Mrs.Nagalakshmi | 60 | female | 142372 | Ulcer right side of forehead | 4months | BCC | Excision / primary closure | Good | yes |
| 32 | Mr.Chinnaswamy | 50 | male | 26208 | Non healing ulcer right gluteal region | 8months | SCC /WD | Left out | NIL | Nil |
| 33 | Mr.Balasubramani | 77 | male | 52803 | Ulcer right foot | 2years | SCC /WD | WLE / SSG | Good | 5 months |
| 34 | Mrs.Maarthaangi | 76 | female | 52159 | Ulcer right sole | 3years | Malignant Melanoma | Died | Died | Died |
| 35 | Mrs.palaniammal | 55 | female | 48219 | Ulcer left side neck over the burns scar | 9 months | SCC /MD | WLE / SSG | Better | yes |
| 36 | Mr.Krishnaswamy | 70 | male | 59538 | Ulceroproliferative growth left heel | 2 1/2 years | SCC /WD | WLE /SSG | Good | yes |
| 37 | Mrs.Parvathi ammal | 55 | female | 28195 | ulcero proliferative lesion over scalp | 7 months | SCC /WD | WLE /SSG | Good | 2weeks |
| 38 | Mr.Shanmugam | 60 | male | 33065 | Non healing ulcer left leg | 10 months | SCC / MD | WLE /SSG | Good | 3 months |
| 39 | Mrs.Managadham | 46 | female | 40169 | Growth lower 1/3rd of left leg | 7months | Verrucous carcinoma | WLE / SSG | Good | 1month |
| 40 | Mrs.Saraswathi | 50 | female | 42901 | Ulcer over the right leg | 1year | Invasive SCC/MD | WLE /SSG | Good | yes |
| 41 | Mr.kuppuswamy | 65 | male | 31987 | Ulcer over the right foot | 1year 3 months | SCC /MD | WLE /SSG | Good | 2 months |
| 42 | Mr.Nanjappan | 80 | male | 55745 | Growth left foot | 10 months | Malignant Melanoma | WLE /SSG | Good | On follow up |
| 43 | Mr.Murugan | 63 | male | 43450 | Ulcer right foot | 7 months | Invasive SCC /MD | WLE /SSG | Good | 1month |
| 44 | Mr.Nageswari | 43 | female | 255039 | Granulomatous ulcer right Leg | 2months | SCC | Excision / primary closure | Good | 2weeks |
| 45 | Mr Thangavelan | 50 | male | 14689 | Ulcerative growth right Leg | 9months | Verrucous carcinoma | WLE/ SSG | Good | 2months |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | **Note:** WLE -Wide Local Excision ; SSG- Split Skin Grafting | | | |

*Colour Atlas*

# COLOUR ATLAS

## SQUAMOUS CELL CARCINOMA FOOT

# SCC OVER RIGHT HEEL WITH INGUINAL SECONDARIES

**SCC FROM WOUND SCAR**

**AFTER WLE AND FLAP RECONSTRUCTION**

**SCC OVER LEFT LEG**

**WLE WITH SSG**

**SCC OVER LEFT THIGH**

**SSC WITH DEFORMED FOOT AND ANKLE**

# SCC FROM POSTBURN SCAR

# VERRUCOUS CARCINOMA FOOT and ANKLE

## (in Hansen's disease)

**VERRUCOUS CARCINOMA OVER KNEE**

**VERRUCOUS CARCINOMA OVER RIGHT HEEL**

**XERODERMA PIGMENTOSUM WITH MULTIPLE BCC**

**AFTER WLE SSG / FLAP COVER**

**PIGMENTED BCC OVER FACE**

**WLE WITH FLAP COVER DONE**

**BCC OVER NOSE**

**BCC OVER CHEST**

**MALIGNANT MELANOMA ON THE SOLE**

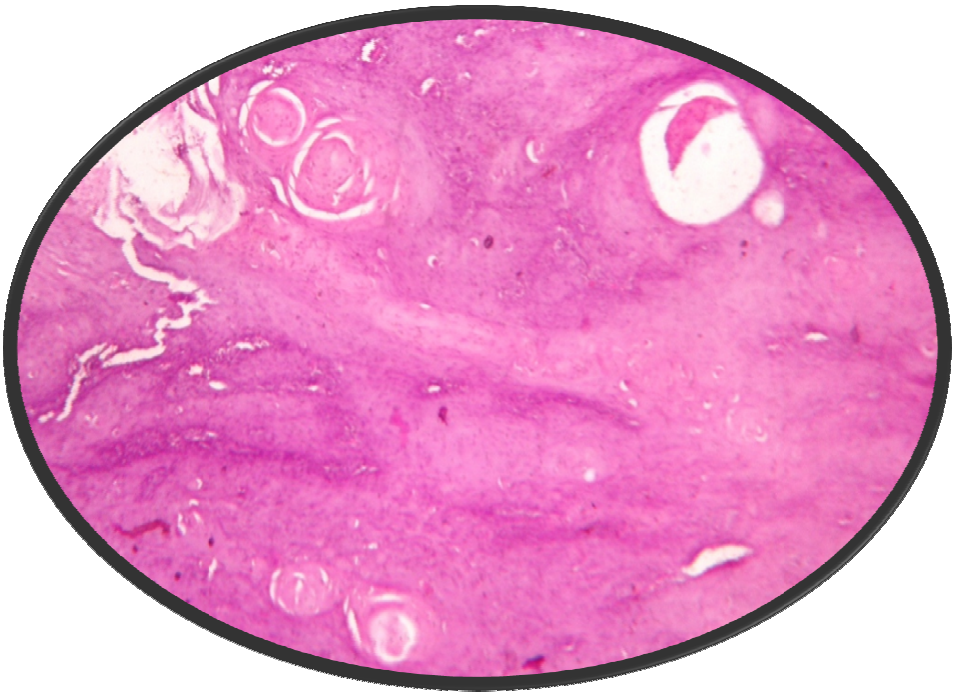
**INGUINAL SECONDARIES**

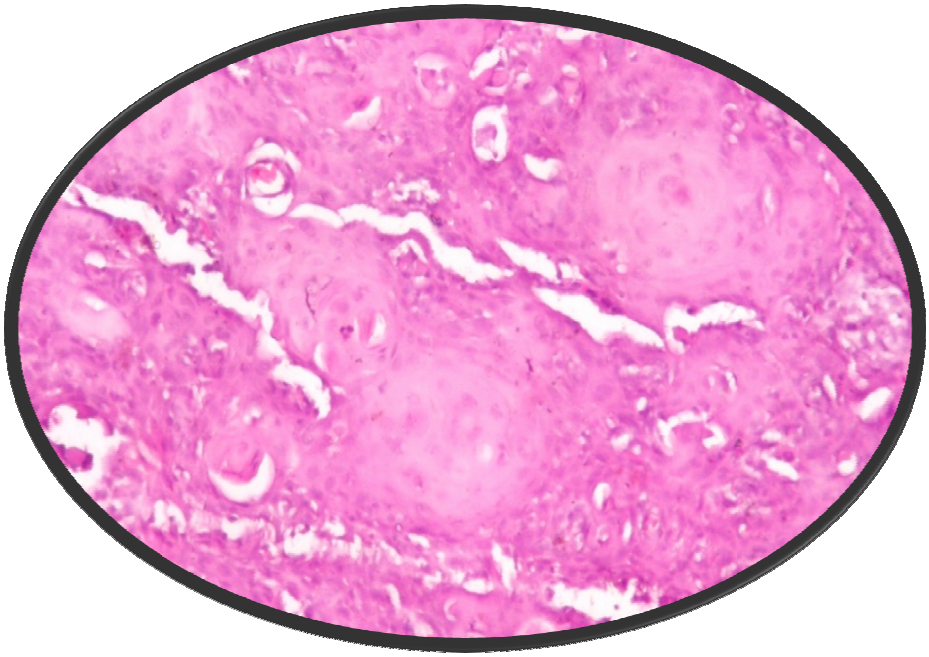
## WLE OF MELANOMA

## ILIO INGUINAL BLOCK DISSECTION WITH TFL FLAP

**HISTOPATHOLOGY**

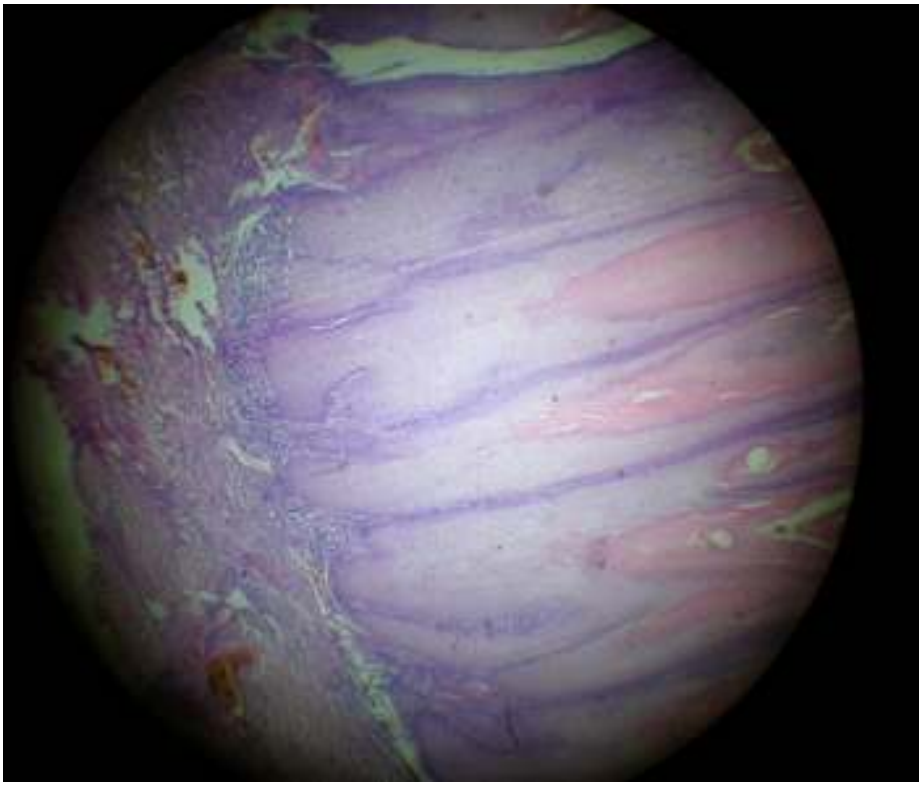
**SCC 10 X**

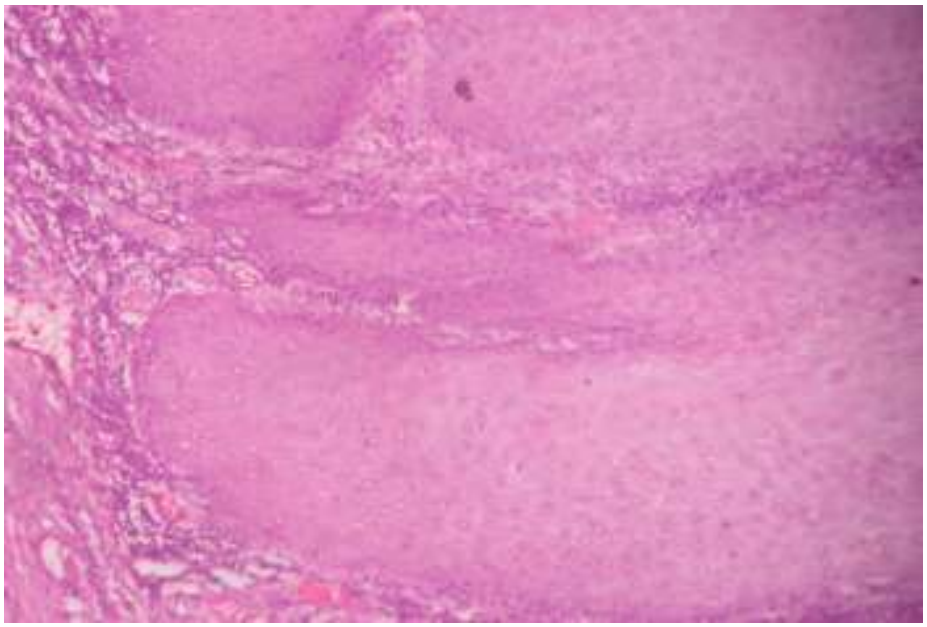




**SCC 40X**

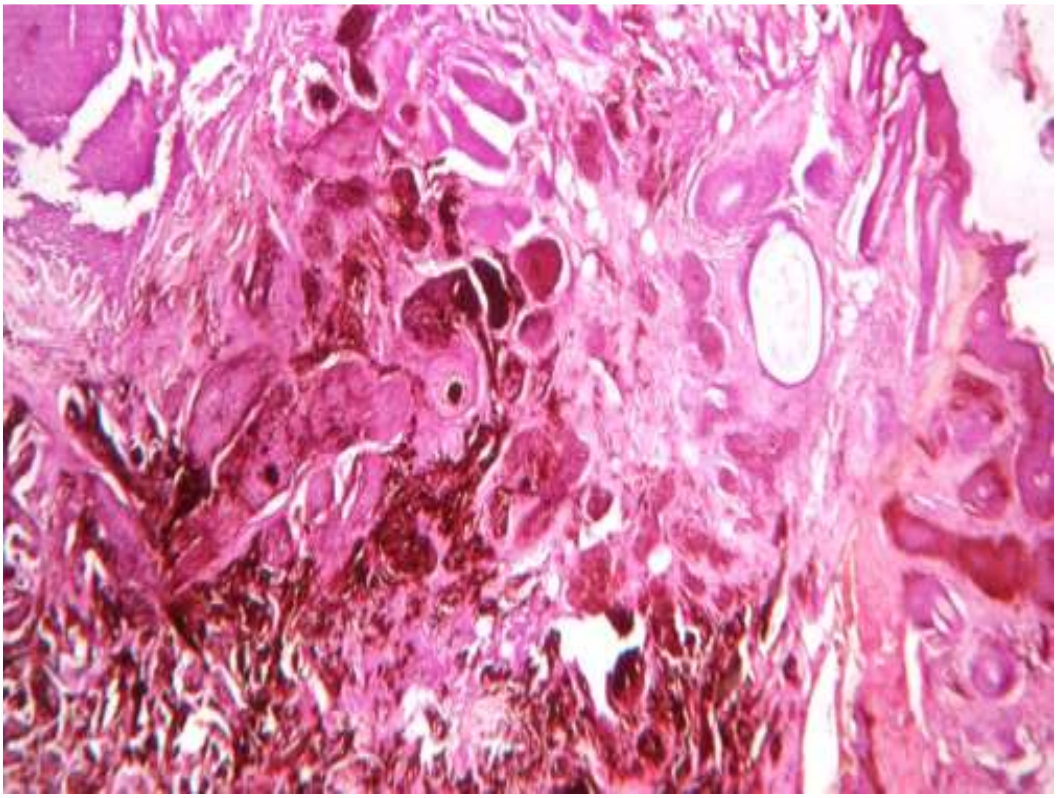
**VERRUCOUS CARCINOMA 10 X**

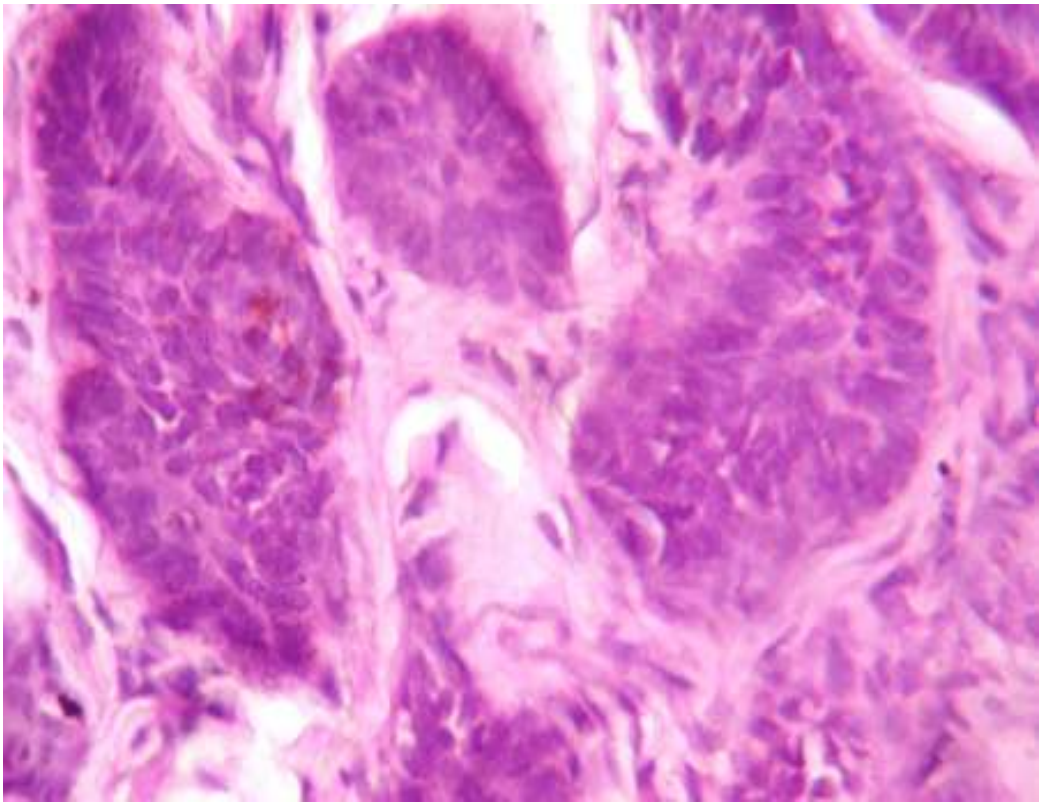




**VERRUCOUS CARCINOMA 40 X**

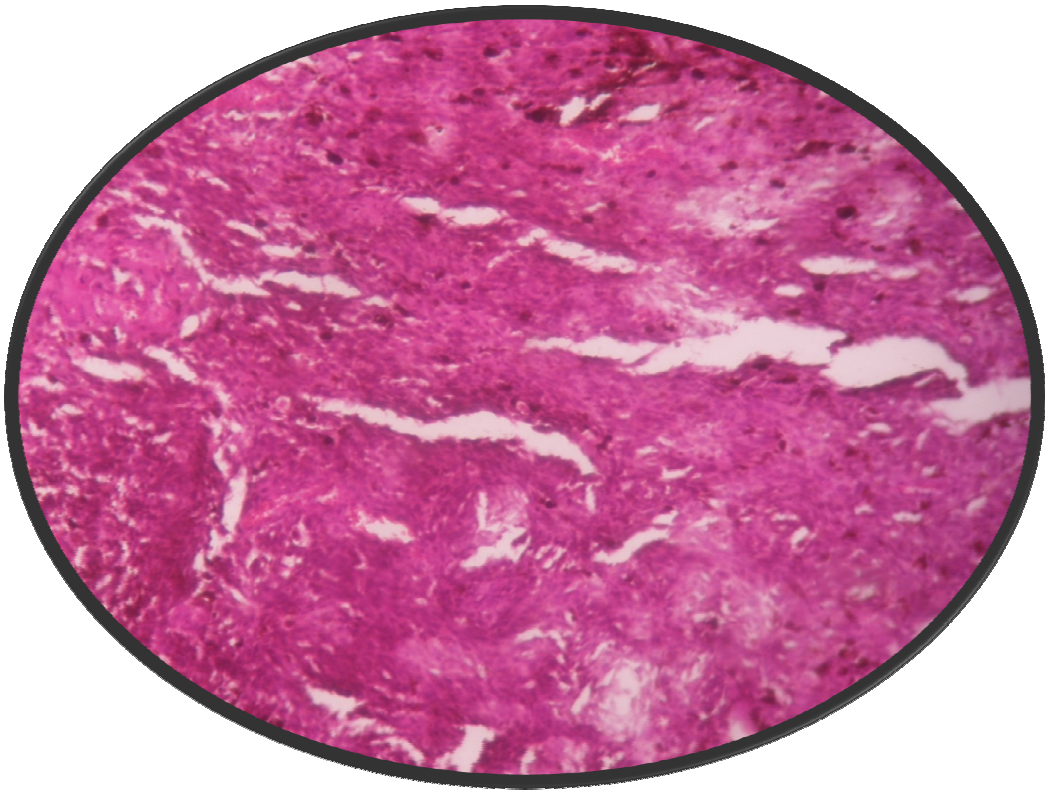
**BCC 10 X**

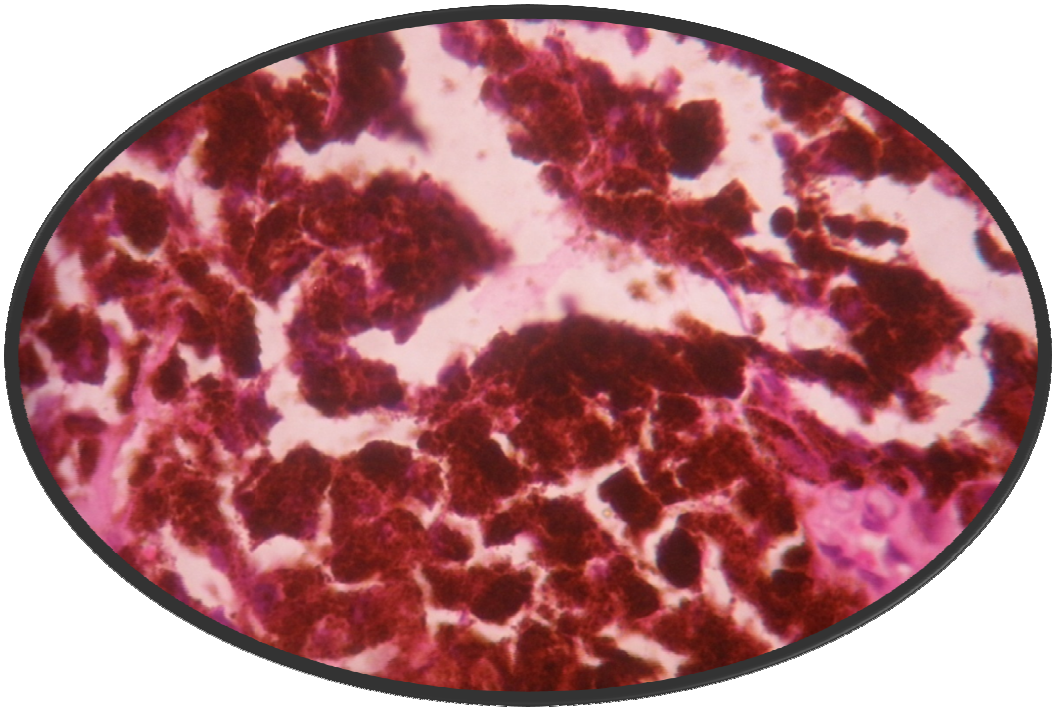




**BCC 40 X**

**MALIGNANT MELANOMA 10 X**





**MALIGNANT MELANOMA 40 X**